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Products, News & Information Data Centers Can Trust. Since 1979

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COVER FOCUS

Moving To A New Data Center

As IT budgets thaw, more enterprises are finding funding for new data centers. Whether you're in the midst of a building process or just thinking about it, this information can help.

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Four Key Data Center Projects

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Get Insight Into Network Performance

Network Monitoring & More With Simena's Packet Flow Switch PFS1524 & Network Taps

by Blaine Flamig

• • •

FOR MANY COMPANIES, operating a network in real time isn't just a goal to aspire to; it's a present-day necessity. Take an international investment firm, for example, that relies on continual, guaranteed microsecond performance of bandwidth-intensive algorithmic trading applications to satisfy and keep pace

entirely accurate performance measurements, including measurements from traffic analyzers, loggers, and monitoring systems.

With the PFS1524's support for all Ethernet SFP and SFP+ module varieties, companies can use any PFS1524 port for any function and use ports simultaneously for input and output. The PFS1524's powerful yet straightforward Web-based interface lets

detailed, real-time port-related statistics; NTP; DNS; syslog- and SNMP-based alerts; textually labeling ports, groups, and filters; and alerts for packets dropped due to over-subscription, port status changes, utilization, and login/logout.

Tap Into Your Network

Another staple of Simena's network-monitoring arsenal is its passive, transparent, rack-mountable fiber and copper network taps, which include the F16 fiber and C18 copper network units supporting 40GbE/10GbE/1GbE/100M and 1GbE/100M Ethernet connections, respectively. The high port density network taps let users connect and disconnect monitoring systems without hindering traffic flow across the network.

In addition to not requiring power and offering non-intrusive security, the compact F16 supports up to 16 taps in 1U with 5ns latency and allows for monitoring half/full-duplex fiber networks at all seven protocol layers and repositioning test equipment without interrupting the circuit. The C18 copper tap supports up to eight copper taps in 1U, includes a redundant power supply with bypass abilities, and can operate as a permanent network link without packet loss.

Coming Down The Pipe

In 2011, Simena expects to have new PFS models available that feature more 10GbE ports; possess modular chassis traits; and offer much lower latency, 40GbE support, PTP- and PPS-based time syncing, packet time stamping at 10ns, MPLS tagging, dynamic packet slicing, in-bound management, and micro-burst detection abilities. □



with its competition. In such cases, having the ability to monitor every packet that flows through the company's network is a must.

Simena provides such companies with a robust monitoring solution via its Packet Flow Switch PFS1524, a 1U form factor switch supporting the highest port density available. The PFS1524 combines the ability to aggregate, duplicate, distribute, and filter packets (Layers 1-4) at 10GbE speed with the industry's lowest fixed latency, which measures just fractions of a microsecond.

Overall, if your company must balance a heavy network traffic load flowing to multiple monitoring tools, share network tools among SPAN ports and taps, connect network traffic between 10GbE and multiple 1GbE ports, or use packet filtering and packet slicing to cut down on SPAN/TAP traffic, the PFS1524 deserves strong consideration.

The Switch Is On

The Packet Flow Switch PFS1524 is a 24-port network monitoring switch that runs a Linux-based OS in the control plane and performs packet duties at 10GbE/1GbE full-duplex wire speed despite the usage among the 24 ports. Companies can bank on the PFS1524's industry-low 650ns fixed-latency port-to-port packet forwarding performance not wavering, including during filtering operations. With fixed latency, companies can keep tabs on their applications and networks down to the single-packet level, guaranteeing

users manage remote packet flow switches from a central location, allowing for easy creation of any-to-many, many-to-many, and many-to-any connections at wire speed.

The PFS1524's Web-based GUI also allows users to create one virtual switch consisting of up to 500 ports by way of clustering, or stacking, multiple packet flow switches. The PFS1524's port tagging ability allows for the identification and sourcing of monitored packets by tagging packets with unique numbers, including the port number from which a packet was received.

Another feature of note is the PFS1524's packet slicing ability, which lets users forward packets that have been stripped of their payload and other portions of the packet. By slicing packets anywhere from a supported 64 to 4,096 bytes and forwarding them by only their headers, companies can significantly cut the amount of nonessential data that could otherwise overload monitoring systems.

The PFS1524's ability to create internal network taps means companies can connect their systems directly to the PFS1524 to perform packet duplication and aggregation duties. Plus, the PFS1524's use of redundant power supplies means traffic from those production systems is always moving.

In addition to multiple user support, the PFS1524 includes support for stacked VLAN, VLAN ID replacement, and VLAN tag removal; dynamic, redundant load balancing; TACACS+ based authentication; outputting

SIMENA PACKET FLOW SWITCH PFS1524, F16 FIBER NETWORK TAP & C8 NETWORK TAP

(571) 323-1500
www.simena.net
sales@simena.net

Description: The PFS1524 is an extremely low-latency packet flow switch with traffic aggregation, consolidating, and dividing; packet filtering and slicing; port tagging; and other abilities. The F16 and C8 are completely transparent external network taps with high port density.

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Also In This Issue...

News

STORAGE

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■ Founded in 2007, virtual security services provider Altair Networks is well on its way to becoming a one-stop shop for **virtualization security** page 36

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■ Credant Technologies' Credant FDE DriveManager provides a way to **manage encryption technologies** across the enterprise, as well as complete data protection for PCs, notebooks, and laptops page 38

CLIENTS

■ Although **networked peripherals** are more functional and efficient than ever, the added capability exponentially increases security risks page 39

■ Even though **printing** is a relatively nuts-and-bolts activity, there are still ways to tweak it that will save your company resources and money page 40

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■ **Product Spotlight:**
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■ These days, bottom line-savvy IT decision-makers look to the **gray market** for cost savings in areas that don't necessarily need the latest and greatest hardware page 44

■ Given that few enterprises are in a position to completely revamp and modularize their data centers, what sorts of less elaborate **green projects** should they be thinking about?..... page 45

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I HTC Android Kernel Integrity Better Than Average

Software integrity analysis firm Coverity recently put a popular distro of the open-source Android kernel under the microscope. The firm found that the kernel tailored by HTC for its Droid Incredible handset had a low defect density that is "actually pretty good," according to the company, coming in at 0.47 defects per 1,000 lines of code—about half the industry average. Although 88 high-risk defects were uncovered, and 359 defects in total, the HTC-coded sections of the kernel had a 40% lower density of defects than the Linux-derived lines of code, Coverity said. The company is working with vendors on fixes.

I Study Ranks SMEs' Security Fears

Although malware in general tops the list of digital worries for end users in small to mid-sized enterprises, according to Trend Micro, there's growing concern about the loss of sensitive data, too. The antivirus vendor surveyed about 1,600 full-timers in SMEs in the United States, Japan, Germany, and the UK, asking them to rate their cybersecurity fears. In order, the SMEs' list of top concerns included viruses (63%), Trojans (60%), data-stealing malware (59%), and intentional or unintentional data leaks (56%). Trend Micro also found that SMEs were 23% less likely to have data loss prevention policies in place than their larger counterparts were.

I Alcatel-Lucent Sees Strong Third Quarter

Alcatel-Lucent reported third-quarter sales of \$5.79 billion, an increase of 10.5% year over year. Despite the positive results for the quarter, however, stock for Alcatel-Lucent dropped 10% on the news, which analysts claim is due

to pressure on the company's margins. The company cited "particularly strong" wireless division sales in North America. Global contracts with the Asian-Pacific region as well as growth in India and China also bolstered the telecommunications company's bottom line. Alcatel-Lucent expects the improvements to continue, with operating margin growth of between 1 and 5% foreseen for the next quarter.

I Microsoft & Motorola Sue Each Other Over Patent Licenses

Motorola Mobility, a subsidiary of Motorola, is suing Microsoft over alleged patent infringement. Motorola asserts that Microsoft violated 16 of its patents in its PC and server software, Windows



Mobile software, and Xbox products. For its part, Microsoft has filed its own lawsuit against Motorola, claiming that Motorola charges the company too much in royalties on its patent licenses related to video compression and wireless network technologies that Microsoft uses in Windows 7, its Windows 7 phones, and the Xbox 360. Microsoft says Motorola is breaking agreements it made with standards organizations to allow other companies to license its patents for H.264 video compression and wireless LAN technologies and

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 13 major companies in the technology market.

Company	Symbol	Year Ago	Oct. 28 \$	Nov. 11 \$	% change from previous issue
AMD	AMD	\$6.48	\$7.63	\$7.63	Unchgd.
CA Technologies	CA	\$21.77	\$22.89	\$23.39	▲ 2.18%
Cisco Systems	CSCO	\$23.40	\$23.19	\$20.52	▼ 11.51%
Dell	DELL	\$15.45	\$14.59	\$13.93	▼ 4.52%
Google	GOOG	\$567.85	\$618.58	\$617.19	▼ 0.22%
HP	HPQ	\$49.70	\$42.66	\$43.10	▲ 1.03%
IBM	IBM	\$126.26	\$140.90	\$145.43	▲ 3.22%
Intel	INTC	\$19.68	\$20.47	\$21.21	▲ 3.62%
McAfee	MFE	\$42.26	\$47.33	\$47.36	▲ 0.06%
Microsoft	MSFT	\$29.36	\$26.28	\$26.68	▲ 1.52%
Oracle	ORCL	\$22.04	\$29.36	\$28.57	▼ 2.69%
Red Hat Software	RHT	\$27.97	\$42.22	\$43.57	▲ 3.2%
Symantec	SYMC	\$17.34	\$16.45	\$17.07	▲ 3.77%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

I HP To Settle E-Rate Charges For \$16 Million

As a result of a fraud settlement involving gifts given to two Dallas and Houston school district customers, HP must pay out \$16.25 million, according to the Federal Communications Commission. Tips from whistleblowers prompted the FCC to investigate how contractors were competing for funds through the U.S. E-Rate program. HP contractors allegedly offered bribes including yacht trips and 2004 Super Bowl tickets to the district customers in exchange for information about the E-Rate bidding process. The FCC will continue to supervise HP's future compliance with bidding regulations by requiring training for employees and monitoring HP's E-Rate business deals.

I Cisco Shares Drop On Cautious Earnings Report

Although Cisco Systems posted a profit for the third quarter, beating analysts' expectations, the company's shares quickly dropped 17% after Cisco CEO John Chambers noted weaknesses in some of the company's business divisions in a conference call with analysts. Although he noted that he expects revenue to grow 3 to 5% in the fourth quarter and 9 to 12% throughout 2011, he lamented the still-recovering economic situation as well as weaknesses in Cisco's set-top cable box, consumer, and public sector businesses. In the third quarter, the company saw net income of \$1.9 billion, an increase of 8% year over year.

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Upcoming IT Events

Are you looking to learn more about data center or IT topics? Network with some of your peers? Consider joining a group of data center professionals. If you have an event you'd like listed, please send an email to feedback@processor.com.

- NOVEMBER -

AFCOM St. Louis "Gateway" Chapter
Nov. 19

Schneider Electric Technology Center
807 Corporate Centre Drive
O'Fallon, Mo.
www.afcom.com/afcomnew/stlouis.html

• • •

ISSA Upstate South Carolina
Nov. 19
NuVox

1001 Keys Drive #100
Greenville, S.C.
www.upstate-issa.org

• • •

ISSA Des Moines

Nov. 22

3920 SW Camden Circle
Ankeny, Iowa
www.issa-desmoines.org

• • •

AITP California Southland
Nov. 24

www.aitpcalsouthland.org

• • •

AITP Akron

Nov. 30

Akron, Ohio
www.akron-aitp.org

• • •

ISSA Inland Empire

Nov. 30, 11:30 a.m.

Coco's Restaurant and Bakery
60 West Foothill Blvd.
Upland, Calif.
ie.issa.org

- DECEMBER -

AITP Long Island

Dec. 4

www.aitp-li.org

• • •

Gartner Data Center Conference

Dec. 6-9

Caesars Palace

Las Vegas, Nev.

www.gartner.com/it/page.jsp?id=1244913

• • •

International Computer Measurement Group Conference

Dec. 6-10

Gaylord Palms Resort
Orlando, Fla.
www.cmg.org/conference/cmg2010

• • •

VMware Vsphere 4.0

Dec. 6

New Horizons
Computer Learning Center
Lexington, Ky.
www.nhlexington.com

• • •

Exchange Server 2010

Dec. 7, 9 a.m.

New Horizons Austin
tinyurl.com/NHAustin2

Dec. 8, 1 p.m.

New Horizons San Antonio
tinyurl.com/NHFTWorth2

Dec. 10, 9 a.m.

New Horizons Dallas
tinyurl.com/NHDallas2

• • •

Greater Wheeling AITP

Dec. 8

Wheeling, W.Va.
www.aitp-wheeling.org

• • •

ISSA Central Pennsylvania

Dec. 8

Harrisburg University of Science
and Technology
326 Market St.
Harrisburg, Pa.
centralpenn.issa.org

• • •

ISSA San Diego

Dec. 8

San Diego, Calif.
www.sdsisa.org

• • •

Southern New England SQL Server User's Group

Dec. 8

[www.snesug.com](http://www.snessug.com)

For more Upcoming IT Events, see page 10.

Nov. 15 launch date to give independent observers time to examine the proposal.

Oracle Continues Fraud Suit With DoJ

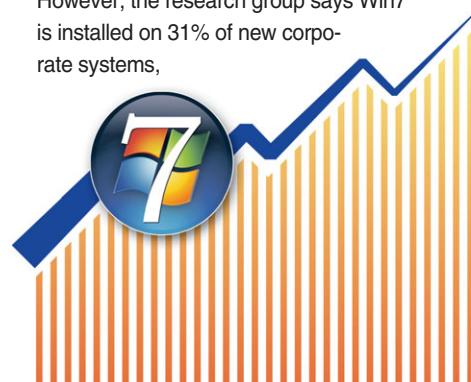
Business software provider Oracle has been dismissed from some aspects of the fraud case placed upon it by the U.S. government, though other portions of the claim remain. Oracle was charged by the Department of Justice with overcharging taxpayers for its software for several years. In a statement, Oracle claims that the case should be lifted due to its age and, consequently, the statute of limitations; some of the allegations against Oracle refer to events that took place in 1997. In response, the government dismissed claims regarding the 1997 disclosures, as well as law fraud claims occurring on or before May 29, 2004. In addition, the government filed an amended complaint showing the specific dates of fraud claims.

Cloud Computing Cuts Carbon Emissions, Says Microsoft

An Accenture and WSP Environment and Energy study commissioned by Microsoft has determined that companies that take advantage of cloud technologies can reduce their energy consumption and carbon footprints by 30% or more, compared to running the same applications on-premises. Savings for smaller companies are even greater and can reach 90% or more. Rob Bernard, Microsoft's chief environmental strategist, says that the true value of the cloud lies in the combination of increased productivity, lower costs, and environmental benefits. The research used Microsoft email, CRM, and other apps, but the company says that the use of other applications and cloud service providers can yield similar benefits.

Forrester Notes "Aggressive" Adoption Of Windows 7

"IT managers worldwide are preparing for a significant desktop transformation over the next three years," according to Forrester's "Updated 2010: Windows 7 Commercial Adoption Outlook" report. Windows XP is still installed on 75% of existing company PCs, with Win7 on 10% of those systems and Windows Vista on 7%. However, the research group says Win7 is installed on 31% of new corporate systems,



and that number should reach 83% within a year. Forrester's research shows that 50% of companies will migrate to Win7 within the next year and that 90% now have plans to upgrade to the new OS at some point. Benjamin Gray and Christian Kane, the report's authors, note that, along with the Win7 upgrade, most enterprises will also be making other major upgrades such as browser, office suite, and applications related to productivity, connectivity, and security.

Survey Cites Data Growth As Most Prevalent IT Issue

A recent survey conducted by Gartner has found that out of the 1,004 global businesses surveyed, 47% rank data growth in their top three challenges and more than 60% plan on maintaining or increasing the amount of data archiving and storage projects due to rapid data growth. The physical infrastructure and software costs of storing data related to customers, employees, and other records is a cause for concern, but many companies must expand in order to match the increase in data; according to the survey, 30% of the companies plan on building new data centers. The most popular technological solutions in which companies are planning to invest

include blade servers, application consolidation, and virtualization.

PC Shipments Update

According to iSuppli, Q3 PC shipments were up 10.3%, or 88.1 million units, compared to last year; specifically, worldwide desktop PC and notebook PC shipments rose 11% and 4%, respectively, from Q2 to Q3. The quarter's shipment growth is not as impressive as in Q1 and Q2, when shipments were up 22.8% and 22.9%, respectively, year over year. iSuppli blames a drop in consumer spending for the quarter, and the firm predicts that Q4 will also see gains, but only 5.3% ahead of those recorded in Q4 2009. According to iSuppli's latest data, desktop PCs showed the strongest growth thanks to corporate spending.

Malicious Search Engine Optimization On The Rise

The practice of SEO (search engine optimization), or tuning Web pages to appear at the top of Google's rankings for given search terms, is widespread and, in most cases, helpful. However, when criminals use SEO to direct innocent Web wanderers to malware-infected sites, it's called SEO poisoning or Black Hat SEO, and according to the Websense 2010 Threat Report, it's on the rise. Websense reports that 22.4% of Google searches since June routed users to malicious Web sites. In the same period of last year, just 13.7% of Google searches resulted in a visit to an unsafe Web site. The firm also reports that malware sites are now frequently posing as legitimate news reports. Compared to last year, the number of malicious sites on the Web is up 111%. Websense also reported that 40% of all Facebook status updates have links, and 10% of those are either spam or malicious.

India & U.S. Join In Clean Energy Efforts

President Barack Obama and Indian Prime Minister Manmohan Singh agreed upon uniting the two countries' efforts in clean energy research during the President's recent trip to New Delhi, India. The India-based clean energy research and development center will be jointly funded by the two countries, each providing an annual \$5 million for five years. Research is said to focus on solar energy, biofuels, shale gas, and efforts to build efficiency. The center will combine talent from each of the two countries, with participation from both the academic and private sectors. The agreement will be in effect for 10 years until renewed.

iPhone Edges Out Android For Reliability

SquareTrade, a provider of after-sale warranties, has estimated that Apple's iPhone 4 is slightly more reliable than Android phones, including Motorola's Droid/Droid X and HTC's Android devices. SquareTrade estimated the iPhone 4's failure rate over a 12-month period at 2.1%, or about two out of every 100. The Droid and Droid X failure rate stands at 2.3%; HTC's failure rate was estimated at 3.7%. The failure rate for RIM's BlackBerry devices stood at a relatively poor 6.3%. The calculated rates did not include failures resulting from accidental damage. Overall, reliability rates soared compared to last year, with all phones exhibiting a much lower failure rate this time around.

Use Of Location-Based Services Remains Small

Just 4% of adults who go online use a location-based service, which lets them share information on their whereabouts with friends so they can more easily find each other when nearby. Pew Internet Center's study surveyed 3,001 adults and found that about 7% of adults using mobile phones use a location-based service, and, among age groups, 18- to 29-year-olds have the highest percentage of users at 8%. Men are twice as likely as women to use a location-based service.

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In order to meet our exacting production standards and rapid prototyping needs, we opened our own metal fabrication plant in 2005. Our engineers thrive on the fact that they can create a design in the morning and see a prototype from our own plant later the same day. We fabricate products from steel, galvanneal, aluminum, Lexan and other flat sheet plastic materials. Our quality control process ensures we deliver only products that have met our own rigorous standards.



We Ship

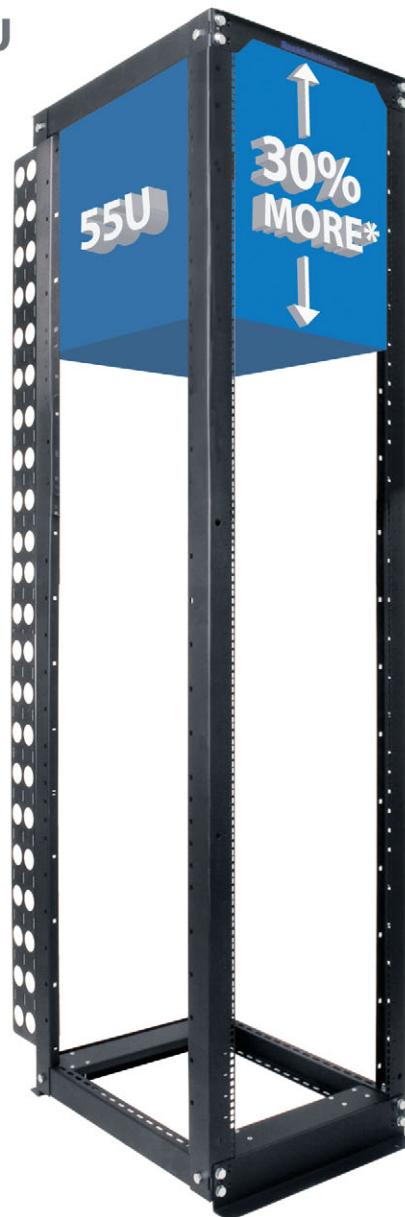
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PRODUCT RELEASES

The Processor Product Releases section includes brief overviews of data center products.

All products listed have been released recently, so use this section to get up to date with what's new on the market and to find products you need.

PHYSICAL INFRASTRUCTURE

■ Black Box ELTC16D, ELTC16

The Economy Laptop Carts from Black Box offer mobile recharging berths for up



to 16 notebooks. The ELTC16D model features a lockable door that slides into the cart when open. The doorless ELTC16 sports a laminate top. Both models are made of powder-coated steel.

■ CABLEExpress Skinny-Trunk Z-Mount LC

CABLEExpress released the Skinny-Trunk Z-Mount LC, a universal mounting bracket designed to fit inside server cabinets without taking up any usable space. Made to exceed industry dB loss performance standards, the Skinny-Trunk Z-Mount LC holds fiber-optic jumpers in front and fiber trunking cables in the rear.

■ Onset Computer Miniature Split-Core Current Sensors

Onset Computer announced a suite of miniature split-core current transducers used to measure AC current loads in motors, pumps, and other equipment. Manufactured by Magnelab, the suite of sensors includes five transducers that are compatible with Onset's Hobo U30 and H22 data logging systems. The sensors cost \$30 each.

■ Pelican-Hardigg Inter-Stacking Pattern Cases

Pelican announced the release of the Pelican-Hardigg ISP (Inter-Stacking Pattern) Cases to prevent shifting cargo. The ISP Cases feature an integrated wave design that uses stacking lid ribs and bottom molded in-discs to create a tight seal between stacked cargo storage. The six available models are cross-stack compatible and feature load-bearing polymer construction. Case sizes range from 4 to 25 cubic feet and are offered in black, gray, desert tan, OD green, and Safety Red. Each case includes an O-ring watertight seal, internal purge valve, high-impact handles, steel cable catches with locks, and a card label holder.

■ Server Technology Sentry Cabinet Power Distribution Units & Power Manager

Server Technology announced the complete integration of its Sentry Cabinet



Power Distribution Units and Sentry Power Manager with the FieldView Solutions software platform for managing the data center. The integration allows FieldView users to gather and display data center device and rack level power, temperature, and humidity information.

NETWORKING & VPN

■ Acme Packet & Glowpoint's Integrated Net-Net Session Director & Open Video Platform

Acme Packet has partnered with Glowpoint to integrate Glowpoint's Open Video

platform with Acme Packet's Net-Net Session Director SBC. The on-demand videoconferencing solution will employ Acme Packet's technology as a session border controller within Glowpoint's Open Video platform for business-to-business video communications.

■ F5 Application Ready Solution For Microsoft Lync Server 2010

F5 released the F5 Application Ready Solution for Microsoft Lync Server 2010. The new solution improves availability through load balancing, SSL offloading, TCP optimizations, and scalability. It also increases admin efficiency with step-by-step cycle configuration and single-point control for system monitoring via Windows PowerShell.

■ Force10 S-Series S4810 & 40GbE ExaScale

Force10 announced two products that can be combined to create one two-tier solution for businesses. The 10GbE or 40GbE S-Series S4810 switch for the data center edge and 40GbE ExaScale virtual switch for the network core come together for improved redundancy, simplicity, and scalability.

■ Geniware Genesis

Geniware released the newest version of Genesis, a desktop imaging and deployment program. Genesis makes it possible to automate the system-building process for nonstandard deployment equipment. Genesis is designed to install integrated OS patches, install core apps, fine-tune the Windows Registry, and establish user permissions.

■ ManageEngine ServiceDesk Plus On-Demand

ManageEngine announced its Service-Desk Plus On-Demand SaaS Web-based application for ITIL-related inquiries and asset management. Specifically designed for SMEs, ServiceDesk Plus On-Demand features a variety of management solutions including change, problem, and incident management as well as purchase, contracts, and asset management.

■ Marathon Technologies everRun MX Extend

Marathon Technologies announced everRun MX Extend, a product designed to deliver end-to-end application availability. everRun MX Extend integrates CA Technologies' ARCserve replication technology and is designed to build on Marathon's fault tolerant SMP everRun MX solution. Features include data protection; complete automation; unified application availability; architecture that is designed to ensure applications run without interruption while being protected; and the ability for the customer to choose their own hardware, hot site, and continuity expectations. According to the company, everRun MX Extend is designed to be affordable by delivering optimal price for performance.

■ Meru Networks AP1000i

Meru Networks announced AP1000i, an 802.11n access point product line aimed at extended enterprises. The AP1000i uses the company's Single-Channel, Virtual Port, and Virtual Cell technologies, which translates to easier deployment and management, reliability,

and cost savings. The release is optimized for retail, manufacturing, and warehouse businesses. Pricing starts at \$395 per single-radio access point.

■ Motorola Solutions Wireless Manager

Motorola Solutions has announced its Wireless Manager, which is designed to help IT departments manage their network infrastructure with better accuracy. It offers flexibility and visibility into all the elements of a wireless broadband network deployment. The Wireless Manager provides network administrators with real-time monitoring and management of their mesh, point-to-multipoint, point-to-point, and any other Simple Network Management Protocol-enabled network elements from a single Google map view. The scalable network management platform enables streamlined deployment and provisioning of



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networks, which helps reduce costs and enables faster network setup. Network elements are overlaid on satellite images as icons and a wide range of information is displayed on the screen.

■ NetEx HyperIP WAN Software

NetEx has added support for Veeam Software, Dell/EqualLogic, Microsoft, Quantum, and AppAssure on its HyperIP WAN optimization software. HyperIP can support OC12 800Mbps data transfers by utilizing 80 to 90% of available bandwidth, NetEx says. It also supports a broad range of data management application transfers, and it meets FTP and iSCSI protocols.

■ NetScout Systems Adaptive Session Intelligence

NetScout Systems announced details concerning ASI (Adaptive Session Intelligence), which is described as a transformative real-time DPA (deep packet analysis) engine that lets enterprises and service providers better scale the management and understanding of the user experience. According to NetScout, ASI dynamically tracks, captures, and analyzes service delivery transactions across multiple-domain IP networks. In addition to increasing detection speed, ASI also quickens troubleshooting service delivery problems.

■ Neverfail For Orion Database

Neverfail released the Neverfail for Orion Database, designed to monitor and protect instances of the SolarWinds Orion database. Providing much the same level of protection as the company's previous product did for SQL databases, the latest release allows administrators to have continuous access to performance monitoring functionality and data, even during updates and outages.

■ Nimsoft IT Monitoring Cloud Readiness Self Assessment Tool

Nimsoft released the IT Monitoring Cloud Readiness Self Assessment tool and has announced support for Cisco Unified Computing System, a blade server infrastructure. The IT Monitoring Cloud Readiness Self Assessment helps

Manufacturers:

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IT manage their planned cloud environments. Cisco's UCS is designed for highly virtualized data centers and cloud infrastructures.



nMETRICS

■ nMetrics Application Monitor 9151

The nMetrics AM9151 application monitor is designed to help larger organizations with high-traffic, hard-working networks better manage network and application performance, making it easier to tackle network issues and, ultimately, save valuable time and money. The AM9151 is designed for Gigabit-capable networks with up to 500 subnets and features hardware-based monitoring that can track all network traffic, including source and destination addresses; application, conversation, and host types; trends and traffic growth; latency measurements; and device availability. For more on this product, see page 31.

■ OpTier BTM 4

OpTier released version 4 of its OpTier BTM solution, which is designed to help customers ensure that business transactions are executed on time and successfully without any disruptions. OpTier BTM 4 includes end-user experience management, application transaction profiling, application diagnostics, auto-discovery of transaction dependencies, and complex event processing.

■ Oracle Sun Ray Software Version 5.1

Oracle announced the release of version 5.1 of its Sun Ray Software desktop virtualization solution. The software now supports Windows 7, Windows XP, Windows Server 2003, and Windows Server 2008 R2. Sun Ray is aimed at reducing or eliminating desktop maintenance as it addresses client security vulnerabilities.

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NEW PRODUCT
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PRODUCT RELEASES

RAD Data ETX-1002

RAD Data announced the ETX-1002, which is a 10 Gigabit Carrier Ethernet aggregation switch designed for customer premises, service endpoints, and third-party network termination units. Features include multi-priority traffic management capabilities and Ethernet OAM diagnostics.

SGI Performance Suite & Management Suite

SGI announced its Performance and Management Suites for use with SGI's line of management-related products. Both products feature a variety of tools that help administrators manage system health, performance, and server status, as well as tools that can help improve overall performance.

SuperLumin Networks Nemesis

SuperLumin Networks released Nemesis, a 64-bit caching and application acceleration tool aimed at helping bandwidth-deficient enterprises that must use the Internet or intranet for bandwidth-intensive applications such as video, social networking, or conferencing. Nemesis includes optimization technologies that allow the system to cache social media sites such as YouTube and Facebook.

Unisys ITSM SaaS

Unisys announced its ITSM SaaS (IT Service Management Software as a Service) that offers IT organizations a lower-cost alternative to coordinate delivery of IT services and support to users. ITSM SaaS is hosted in Unisys

client services centers, and it gives clients' service personnel Web-based access to a common set of IT service management tools.

Vanguard Integrity Professionals Configuration Manager

Vanguard Integrity Professionals announced the general availability of Vanguard Configuration Manager, which is software that reduces the cost and time required to test mainframe systems to assess their accordance with the DISA STIG (Defense Information Systems Agency Security Technical Implementation Guides). Vanguard Configuration Manager is a fully automated baseline configuration scanner for mainframe DISA STIGs.

STORAGE**Avere OS**

Avere's FXT Series of NAS units run on a proprietary operating system, which has just received a significant update. Avere OS now supports up to 24 heterogeneous mass storage systems, the company says. The OS also supports bi-modal CIFS ACL and parallel file access.

Caringo CAStor 5.0

Caringo announced CAStor 5.0, software designed to deliver enterprise and private cloud storage. Features include named objects, multitenancy, dynamic caching, and seamless remote data replication. Other features include user-assigned symbolic naming, enhanced support for enterprises, and individual domains for each tenant.

Fujitsu Eternus CS, CS800

Fujitsu released a fifth-generation version of its Eternus CS data protection appliance for the large enterprise. Also shipping is the second-gen edition of the company's Eternus CS800 data protection appliance for SMEs. Features include better resilience for locally and remotely stored data, appliance cascading, and deduplicated data replication.

Hitachi Data Systems Data Ingestor & Content Platform v4

Hitachi Data Systems announced two integrated technologies aimed at simplifying cloud adoption. According to the company, Hitachi Content Platform v4 provides simplified and automated replication, more granular multitenancy, and chargeback capabilities, while the Hitachi Data Ingestor allows access to the content platform's 40PB capacity and also provides enhanced storage and backup capabilities.

InMage vContinuum

InMage announced disk backup and disaster recovery software called vContinuum. Designed to work in VMware ESX/vSphere VM environments, vContinuum is



based on continuous data protection technology. Features include a single solution for backup and replication in virtual environments, elimination of backup windows, application consistency, long-term data

retention on disk, file-level recovery in seconds, and optimized utilization of target storage capacity.

Iron Mountain Enterprise Discovery Suite

Iron Mountain released its Enterprise Discovery Suite, described as an integrated information governance and discovery package that includes content archiving, legal discovery, and data classification abilities for enterprises performing discovery chores for disparate point products. Suite components include NearPoint, a central content repository; Classify & Collect, which enables data collection from endpoint devices; eVantage, an early case assessment solution; Legal Discovery; and Consulting.

Oracle StorageTek Virtual Library Extension

Oracle announced the StorageTek Virtual Library Extension, a highly scalable second-tier disk storage product. Designed to optimize tape processing, the StorageTek Virtual Library Extension features double the disk scalability, integrated three-tier storage, the ability for customers to keep active data on disks longer before migration, and support for both mainframe and non-mainframe environments.

Overland Storage SnapSAN S1000

Overland Storage released the SnapSAN S1000, a 2U, 12-drive modular storage system for business-critical applications that can scale from 1.2TB to 120TB via SnapDisk E1000 expansion units (\$4,195 without drives). The system can be

Go to Page 8



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PRODUCT RELEASES

Continued from Page 7

customized with single or dual 1GbE or 10GbE iSCSI. Pricing for the SnapSAN S1000 starts at \$6,995.

■ Queplix Virtual Data Viewer

Queplix introduced its Virtual Data Viewer, which is a free utility that lets users effectively plan for data migration, management, integration or other data-centric operation. It supports BI, relational database applications, master data management, data warehousing, and more.

■ Spyrus Secure Pocket Drive

Spyrus released its Secure Pocket Drive USB flash drive with Windows Embedded Standard 7 preinstalled. Spyrus says the drive was designed with FIPS 140-2 level 3-certified hardware, next-gen cryptographic algorithms approved by the U.S. government, and self-checking functionality. The Secure Pocket Drive comes in Remote Access, Productivity, and Productivity RO (Read Only) versions.

SECURITY**■ Accellion Secure File Transfer Solution**

Accellion released its Secure File Transfer Solution for the Microsoft Business Productivity Infrastructure Platform. The solution will extend secure file transfer abilities to Outlook 2010, SharePoint 2010, and Office Communication Server 2007 R2. Beyond letting enterprises and agencies securely send and receive files and folders, encryption and business-level authentication are in place to validate recipients to ensure confidential data isn't overexposed.

■ BMC Business Service Management Platform

BMC announced the expansion of its Business Service Management platform, which includes automated capabilities. The IT Governance, Risk, and Compliance solution lets users define and manage policies; automate and manage controls and audits; automate and enforce compliance across infrastructure, end users, and suppliers; and ensure appropriate user access permissions across the IT environment.

■ Bocada Prism R2

Bocada announced enhancements to its Prism R2 data protection service management solution. Prism R2 includes five trending reports to help users understand data protection activity. The newest version also features performance enhancements for rendering reports on large-scale data sets. Bocada says Prism R2 is appropriate for backup service providers, MSPs, and SaaS vendors.

■ CoSoSys Endpoint Protector Appliance

CoSoSys released its Windows- and Mac-compatible Endpoint Protector Appliance. The product, designed for enterprises with computer networks ranging from 50 to more than 5,000 computers, addresses security threats that may occur due to portable storage and other devices that may have access to a company network.

■ EMC Data Protection Advisor

EMC introduced the EMC Data Protection Advisor software capabilities, which are designed to automate and expand backup and replication monitoring, alerting, and reporting in private cloud



environments. The offering delivers a single view of data protection status, which can save time and cut costs.

■ Juniper Networks Junos Pulse Mobile Security Suite

Juniper Networks announced its Junos Pulse Mobile Security Suite, an all-in-one mobile software solution that includes antivirus, antispam, theft prevention, personal firewall, and other services for protecting security and connectivity for mobile devices. It is designed to secure the data being sent to corporate email and applications on smartphones and other devices.

■ Kaspersky Lab Kaspersky Anti-Malware Protection System

Kaspersky Lab introduced its Kaspersky Anti-Malware Protection System, which includes eight new or enhanced integrated security products. The system includes endpoint protection for Windows, Linux, Mac, and smartphone devices and includes server and gateway security for Windows servers, Linux servers, and Microsoft Exchange Server 2007/2010.

■ Lumigent Technologies Audit DB 6.5

Lumigent Technologies released Audit DB 6.5, a solution that helps track auditing data as well as aiding in database assessment and policy management. The solution also ensures that audit information is managed so that compliance regulations are met. If there is suspicious or fraud-like behavior in the data, Audit DB 6.5 will send an alert so the problem can be corrected. The audit solution features enhancements such as streamlined packaging and installation utilities, an operational management dashboard, and collection engine optimization to make the auditing process as intuitive as possible.

■ McAfee Network Access Control & Network Security Platform

McAfee announced that its Network Access Control solution will be integrated with the McAfee Network Security Platform. Features include internal



network visibility; access control management from one console; and NAC, Network IPS, and behavioral analysis tools. The Network Access Control solution minimizes outbreak risks, reduces downtime vulnerabilities, and uses efficient security collaboration, according to McAfee.

■ Oracle GRC Controls 8.6

Oracle announced the latest version of its Oracle GRC Controls. Part of Oracle Fusion Governance, Risk, and Compliance, GRC Controls 8.6 is designed to help lower compliance costs, improve financial governance, and enhance operational performance. Features include innovations in user productivity, a sophisticated incident management capability, and the collaborative disposition of issues across multiple departments.

■ Specops Software Specops Deploy

Specops Software released enhancements to Specops Deploy, its group policy, desktop, and password management software. The latest version automates front-end deployment, which allows an administrator to deploy complete operating systems, legacy files, and patches. Specops Deploy offers support for MDT 2010 Update 1, a convenient log viewer, updates to Windows USMT, and improvements to the user interface.

■ Trend Micro Worry-Free Business Security 7

Trend Micro released Worry-Free Business Security 7, which aims to help small businesses with various aspects of security. Features in this version include email data loss prevention, integrated Mac client protection, and removable device control (USB memory drives, etc.). The release also comes with Worry-Free Remote Manager, a single hosted console that helps channel partners manage multiple customers.

■ VeriFone Systems & RSA VeriShield Protect

VeriFone Systems announced a strategic partnership with RSA to market their end-to-end encryption and tokenization solutions as an integrated payment security offering to be branded VeriShield Protect. It will use industry-proven security technology and leverage electronic payment systems to provide a consistent, consolidated approach to protecting payment card data from end to end.

■ Vircom Email Security Grader

Vircom's Email Security Grader is a free online tool that is designed to help IT and mail administrators evaluate the security of their mail infrastructures. The EmailSecurityGrader.com Web site empowers IT and mail administrators by allowing them to run a full email security test suite on their domain. Email Security Grader performs diagnostics on MX records, reverse DNS, SPF, DNSBL, Open Relay, and SMTP/POP3/IMAP authentication.

MESSAGING & TELEPHONY**■ BroadSoft BroadCloud**

BroadSoft released BroadCloud, a cloud-based hosted infrastructure that will serve as the basis for BroadSoft's SaaS communications abilities. The suite features a set of UC (unified communications) services that includes BroadCloud Instant Messaging & Presence, with corporate instant messaging and presence with full integration of a subscriber's phone status; BroadCloud Video, a high-definition, always-on videoconferencing service with support for various devices; Web Collaboration, a suite of Web-based options covering screen sharing, document library, chat, and audio; PacketSmart, a network assessment and monitoring service; and Casabi, a consumer-aimed product that delivers group SMS, personalized content, and tools.

■ Cyber-Ark Software Secure Email Manager

Cyber-Ark Software announced the release of Secure Email Manager as part of its Governed File Transfer Suite product. Secure Email Manager provides added protection and more efficient file transfer by allowing employees to share and track files within their native email

environments. The company says that Secure Email Manager offloads file transfers to reduce the load on Exchange servers while helping IT departments to maintain security and increase compliance with both corporate policies and industry regulations. The product integrates with Microsoft Outlook, which simplifies deployment and training. Secure Email Manager strips, encrypts, compresses, and transfers attachments via the Inter-Business Vault, enabling the secure exchange of emails between employees and recipients.

■ Polycom Unified Collaboration Solution For IBM Lotus Sametime

Polycom launched the Polycom Unified Collaboration Solution for IBM Lotus

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Sametime, which is an integrated telepresence and desktop video collaboration platform for IBM Unified Communication and Collaboration environments. The offering lets users easily connect and collaborate, which boosts productivity, improves decision making, and significantly reduces the need to travel. The platform features simple Click-to-Call and Click-to-Conference capabilities, letting users take advantage of telepresence, video, voice, and unified conferencing from presence-enabled contacts within IBM Lotus Sametime. The Polycom Unified Collaboration Solution for IBM Lotus Sametime is available through certified Polycom channel partners.

SERVERS**■ Supermicro SuperServer 6046T-TUF**

Supermicro released its SuperServer 6046T-TUF in a short-depth, 4U chassis. The server is made for industrial PC and embedded applications. It's also designed

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for expandability with an 8MB UEFI BIOS and six PCI-E expansion slots. An 11-slot model is on the way, according to the company.

CLIENTS**■ Cisco SocialMiner**

Cisco announced SocialMiner, its social media software solution. SocialMiner allows companies to search through multiple social media networks, such as Facebook and Twitter, as well as blogs and forums, and find mentions and discussions that involve the company itself. SocialMiner is intended to make customer interaction easier for businesses.

■ Eurocom Mobile Server, Mobile Workstation

Eurocom says that its Mobile Server and Mobile Workstation notebooks can now benefit from Intel's Xeon X5690 microprocessor. The X5690 is a 32nm Westmere-EP chip with a 3.46GHz clock speed (3.6GHz in Turbo Boost mode), 12MB of L3 cache, and support for triple-channel DDR3 memory.

PRODUCT RELEASES

■ Exele Information Systems**TopView SQL**

Exele Information Systems announced TopView SQL, a tool that allows users to query a relational database as a source of "monitored data" for TopView. Features include the ability to easily monitor, alarm, and send notifications for data. TopView SQL features standard ODBC and OLEDB interfaces.

■ Kyocera SearchExpress On HyPAS MFPs

Kyocera announced that its line of SearchExpress solutions can now be used by all HyPAS-enabled MFPs. The Search-Express products can manage copying and printing jobs by putting them into user-defined indexes. In turn, these indexed documents can then be searched for on a PC or mobile device and printed using one of Kyocera's MFPs.

■ Motorola MC3190-Z

Motorola released its RFID handheld, the MC3190-Z, which is designed to help businesses catalogue inventory with higher accuracy and lower cost. This RFID scanner is only 1.4 pounds, features an ergonomic design, and includes the Motorola RFID locating engine that can lead you to the inventory you're looking for using audio and visual prompts.

■ SAP ERP Via**NEC's Cloud Infrastructure**

SAP and NEC recently announced a partnership to bring SAP's enterprise resource planning application to NEC's cloud infrastructure. Users can take advantage of the service for faster deployments,

reduced demands on IT resources, and more cost-effective IT transformation.

■ SmartAVI SignWare

SmartAVI released its SignWare digital signage solution, which is a comprehensive digital signage package that's affordable and expandable. SignWare offers crisp high-definition 720p/1080i HDTV video combined with stereo audio in a low-profile enclosure. SignWare also supports several different media types including live RSS feeds, AVI, WMV, GIF, Animated GIF, and JPG.

**■ Wacom LCD Signature Tablets**

Wacom released a trio of electronic signature tablets. The tablets are geared toward paperless transactions and digital workflow applications. The company says that its advanced electromagnetic resonance technology is able to pick up biometric differences among various users' signature techniques as a hedge against fraud and forgery. Models in the Signature series include the 4-inch STU-300 (\$199), the 5-inch STU-500 (\$269), and the 4.7-inch color widescreen STU-520 (\$329). The STU-520's display can also incorporate soft keys or menu buttons. The tablets support software from SOFTPRO, Silanis, CIC, and eOriginal, Wacom says.

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Upcoming IT Events

For more Upcoming IT Events, see pages 4 & 12.

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Dec. 9, 6:30 p.m.
Alfio's Restaurant
4515 Willard Ave.
Chevy Chase, Md.
aitpwashdc.ning.com

ISSA Northeast Ohio
Dec. 9
Cuyahoga County Library
Parma South
7335 Ridge Road
Parma, Ohio
www.neoissa.org

SQL Server Society of Las Vegas
Dec. 9
The Learning Center of Las Vegas
777 North Rainbow
Las Vegas, Nev.
ssolv.com

Visual Studio 2010: A First Look
Dec. 9, 9 a.m.
New Horizons Cincinnati
10653 Techwoods Circle
Cincinnati, Ohio
tinyurl.com/NHCincinnati2

Visual Studio 2010
Dec. 10, 9 a.m.
New Horizons Dayton
1890 Commerce Center
Fairborn, Ohio
tinyurl.com/NHDayton3

AITP Pittsburgh
Dec. 13
Slovak Catholic Sokol
205 Madison St. Road
Venetia, Pa.
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AITP Garden State
Dec. 14
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58 Eisenhower Parkway Mountain Plaza
Roseland, N.J.
tech.groups.yahoo.com/group/aitpgardenstatechapter

AITP Richmond
Dec. 14
2015 Staples Mill Road
Richmond, Va.
www.aitprich.org

PASS Wisconsin SQL Server User's Group
Dec. 14, 4:30
Microsoft Office
2176 Woodcrest Drive
Green Bay, Wis.
wisconsin.sqlpass.org

VMware vSphere: Troubleshooting [V4.x] Class at Platform Lab
Dec. 14, 8 a.m.
Platform Labs
1275 Kinnear Road
Columbus, Ohio
www.platformlab.org

AFCOM Central Ohio
Dec. 15
Columbus, Ohio
www.afcomcentralohio.org

AITP Northeastern Wisconsin Chapter
Dec. 15, 4:15 p.m.
Holiday Inn Select
150 S. Nicolet Road
Appleton, Wis.
new.aitp.org

AFCOM Central Texas
Dec. 16
Austin, Texas
www.afcom.com/afcomnew/CentralTexas.HTML

AITP Greater Boston
Dec. 16
Phillip's Old Colony House
Dorchester, Mass.
www.bostonaitp.org

COVER FOCUS

When Is A New Data Center Necessary?

Deciding To Move Or Expand Your Data Center Requires More Than You Might Expect

by Christian Perry

EVEN IF THE WALLS aren't crumbling, the floor isn't cracking, or the ceiling isn't fractured, it still might be time to move to a new data center or expand your existing space. But because the reasons for a move might not be so outwardly evident, determining the right time for a move can require a hefty dose of introspection on the part of data center managers and other executives in your organization.

"Data center owners are battling the need for added power and cooling in older and poorly planned facilities that never anticipated the load demands that they are facing. The result is many data center owners need to move to a newer data center or update their current data center to meet

in the power and cooling departments.

Filling an older data center with newer technologies doesn't necessarily guarantee that the aging data center won't be able to accommodate needs for years to come. But when elements such as power, cooling, or space become sparse, organizations shouldn't simply assume that a new location is the best answer. According to Burnett, there are some indicators that should encourage a move vs. an expansion.

"If your current facility has proven unreliable during your residence, then a transition to a new facility warrants some investigation," Burnett says. "Some shortcomings in a facility can be overcome with upgrades or additions, but if you have had failures in infrastructure that you cannot address, you need to evaluate a new facility."

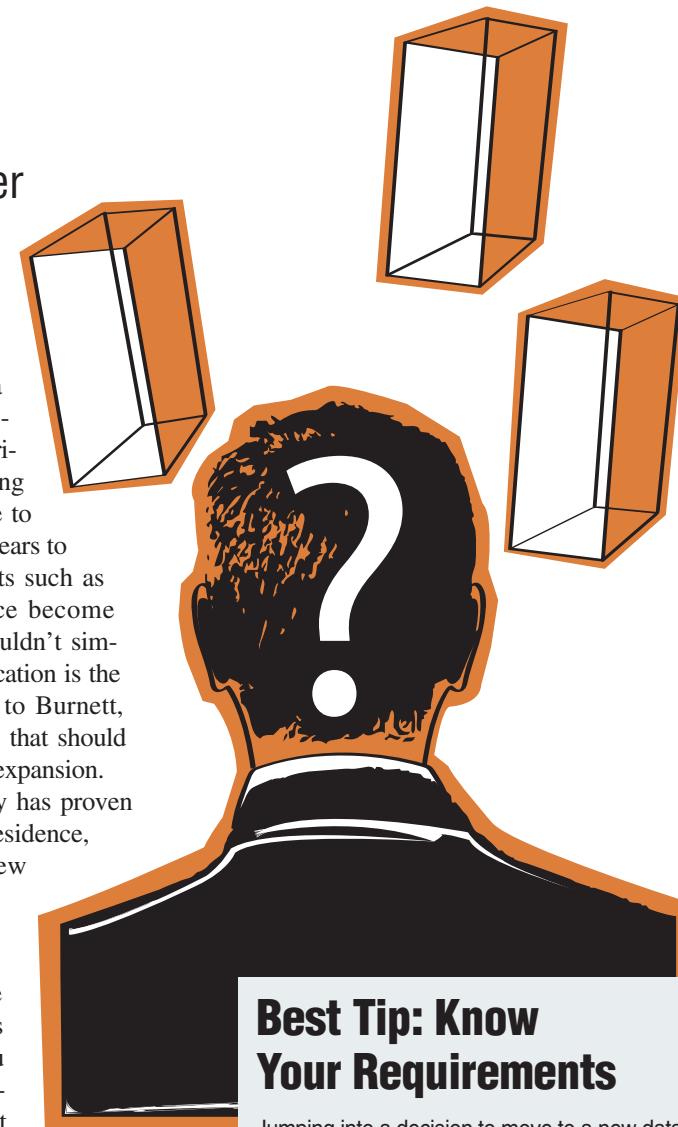
Ortiz adds that expansion, rather than moving, brings with it a host of benefits, including maintaining a contiguous data center space (or at least a data center within a single building), utilizing or expanding existing infrastructure and amenities, reduced staffing requirements, no moving costs, saved time, and others. However, when expansion space isn't available, the need for a new (or colocated) facility will become clearer.

All Aboard The Decision Train

Because the decision to move (or expand) or remain in the existing data center will have a direct impact on the business, data center managers shouldn't be expected to make that decision alone. Steve Gruetter, director of Platform Lab (www.platformlab.org), says that IT leadership needs to document and effectively communicate the risks and expected costs of the various move/expansion options. On the flip side of the coin, the business leaders need to document and effectively communicate the requirements of the business to the IT leadership.

"Moving or building a data center is no small matter, considering that most companies are unable to properly function when their data center is offline," Ortiz adds. "Consider a bank, as an example, that relies on millions or billions of transactions every hour, minute, or second. If those transactions stop because a data center needed to be moved or built, then it would get the attention of the entire company."

According to Ashish Nadkarni, principal consultant at GlassHouse Technologies (www.glasshouse.com), the server, network, and storage teams should all be involved in the decision-making process when the prospect of a new data center is on the table. Further, he recommends that the infrastructure, facilities, and financial/contracts teams also be consulted during the process.



Best Tip: Know Your Requirements

Jumping into a decision to move to a new data center is never advisable. Instead, experts recommend taking a meticulous look at your current requirements and how your data center is accommodating them. Steve Gruetter, director of Platform Lab (www.platformlab.org), recommends finding answers to the following questions.

- Do your lines of business match the capability of the current data center characteristics?
- Has the overall performance been acceptable?
- How much actual downtime has been experienced?
- How much unscheduled downtime has been experienced?
- Does your data center communicate with you when your site or apps aren't functioning correctly?
- Do new or existing lines of business require a greater level of stability?
- Has the power allocation been appropriate and accurate?
- Does the facility have the power, space, and bandwidth availability for expansion?
- What is the percentage of power consumption to power availability?
- What is the percentage of average bandwidth consumption compared to total bandwidth availability?
- Does your business require a level of certification that your current data center does not have, such as SAS 70?
- Has your data center's security protocol been acceptable?

"All moves entail risks to the business, and most will require an outage, so it is best if all of the executives of the business are at least made aware of that," says Swastik Lahiri, lead principal at Technisource (www.technisource.com). "Furthermore, moves will require tradeoffs between costs, risk, and business disruption, and thus all the business executives should have some level of input on the decision." P

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by Blaine Flamig

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For more Upcoming IT Events, see pages 4 & 10.

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- JANUARY -

Cisco (SWITCH):

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COVER FOCUS

Site Selection Considerations

When Choosing A Site, Look For Proximity To Power Sources, Reliable Internet Access & Easy Accessibility

by Phil Britt

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THE OLD SAW is that the three most important factors for real estate are location, location, and location. Though this maxim holds true to an extent for SMEs looking to build new data centers, there are many more factors that go into the selection of a prime site.

"There are three key elements when we look at potential sites: geography, availability of power, and proximity to fiber providers and Internet access," says Mike Klein, president and COO of Online Tech (www.onlinetech.com), a colocation provider with two data centers that is considering further expansion.

Power Is Key

Online Tech added its newest data center in 2008. Klein chose Ann Arbor, Mich., because the site was close to his existing data center, had readily available power, and good Internet access. By being close to the existing location, yet still on a different power grid, the second facility offered good data recovery options, according to Klein.

"You have to understand how much power is readily available and what your needs are for the next several years," Klein says. "If the utility company has to beef up their circuits up front in order to meet your power demand, it's going to cost a boatload of cash up front to make it happen."

Data center operators largely agree that the immediate availability of power—rather than trying to obtain additional power from the utility—is the make-or-break decision when it comes to retrofitting an existing data center or going to a new facility. The legacy site might be retained after the move, but it's more efficient to have data center specialists in a single location than in two or more, Klein says.

Additionally, although redundant power is preferred, it isn't available in many areas of the country that otherwise have sufficient power, the necessary fiber connections, and good accessibility for customers, says Rob Nevins, chief technical architect for KDSA Data Center Services (www.kdsadatacenter.com), which operates three data centers in Massachusetts.

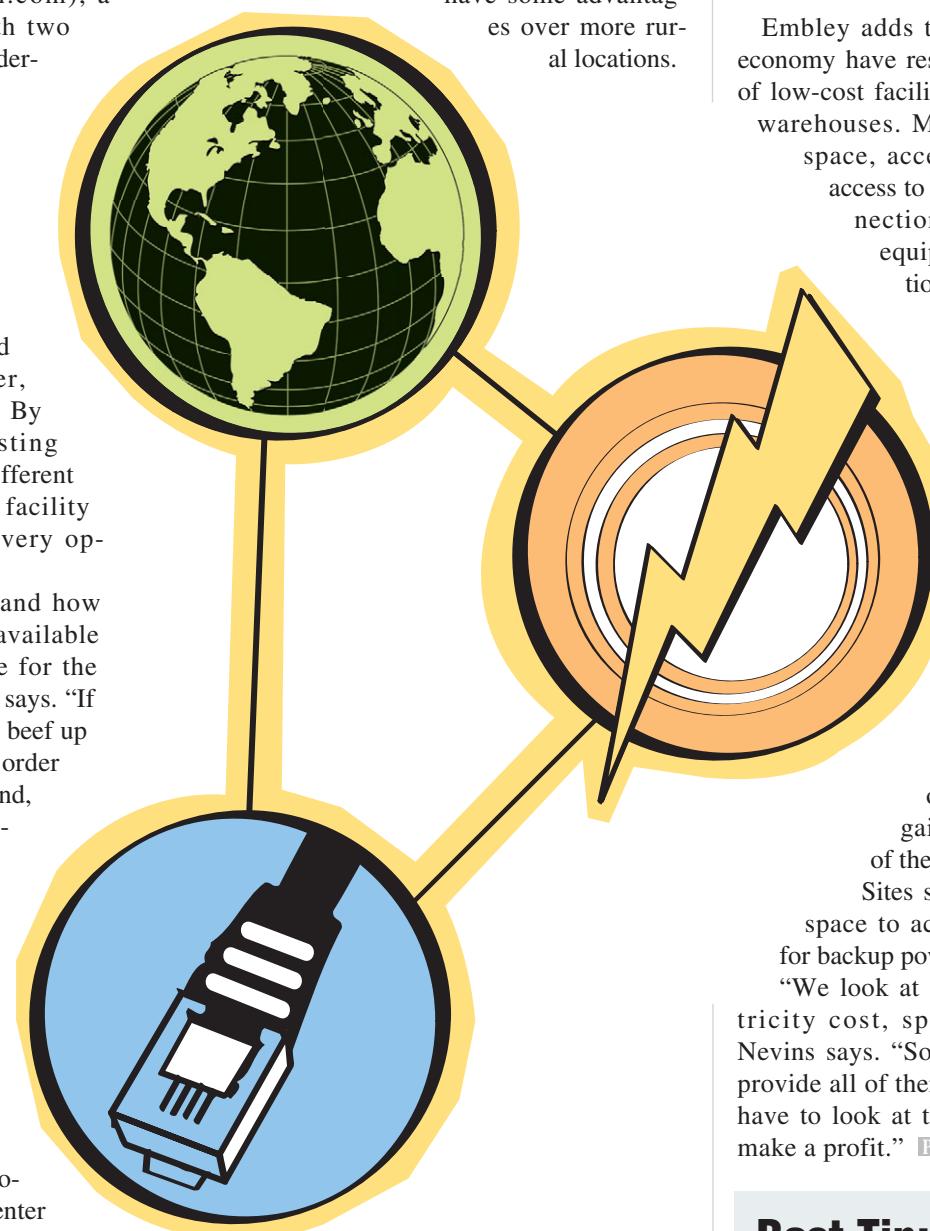
Communications Concerns

As Klein says, proximity to fiber providers and Internet access is another prime consideration for a data center site. The access to redundant fiber-based carriers provides the data center with some pricing leverage for their Internet access, adds Jim Embley, CEO of Rubicon Professional Services (www.rubiconps.com). "You can't operate without the fiber."

Jim Sauvageau, vice president of the mission-critical facilities group for Environmental Systems Design (www.esdesign.com), adds that proximity to communications trunk lines is important for any data center user involved in any business where data latency is a concern.

Accessibility Considerations

Vendors, customers, and employees all need good access to any data center location, experts agree. To that end, downtown locations accessible by public transportation and municipal roads have some advantages over more rural locations.



Arthur M. Kurek, president of Alicom (www.alicomp.com), adds that the data center should be within an hour's drive from a regional airport. This means that some places in the Northeast, although they might have adequate power and Internet connections, would not be workable.

"Clients want to be able to come in and see the facility," Kurek explains. "They come in often enough that you want to be well within an hour from the airport. It makes a difference. Clients don't want their drive to be longer than their flight."

Other Considerations

If all other factors are equal or extremely close, there are some other considerations that can make one site preferable over another, according to Embley. With unemployment hovering near double digits, municipalities are looking for ways to bolster employment, and many will provide tax incentives in return for a certain number of promised jobs.

Key Points

- Reliable, reasonably priced, and available power is the top priority in selecting a data center site.
- Fast communication is more important than ever, so data centers should have fast connections, preferably from multiple providers.
- Clients, vendors, and staff need to have good accessibility to data center locations.

Embley adds that the changes in the economy have resulted in the availability of low-cost facilities, such as abandoned warehouses. Many of these have the space, access to electricity, easy access to fiber-based Internet connections, loading docks (for equipment), and transportation access that make them prime potential data center locations.

Another consideration is the security of the location, says Kurek, who looks for sites without any windows and where his firm is the only tenant. If the move is to a multitenant site, a data center manager should ensure that other tenants couldn't gain access to his portion of the facility.

Sites should also have enough space to accommodate generators for backup power, Sauvageau adds.

"We look at geography, space, electricity cost, space and bandwidth," Nevins says. "Sometimes a location can provide all of them, [and] sometimes you have to look at the best mix in order to make a profit." □

Best Tip: Find A Site With Renewable Energy Sources

There are several considerations in picking a data center location, but arguably the most important of all is the availability of reliable, low-cost power. Tate Cantrell, CTO of Verne Global (www.verneglobal.com), takes that idea one step further, recommending renewable power wherever available. That was the main consideration in his firm's decision to have a location in Iceland, which has 100% renewable energy from hydroelectric and geothermal sources.

If an Icelandic data center isn't in the cards, SMEs can still make use of available renewable energy sources by finding a location stateside that is near a river for hydroelectricity, close to a lake for water-cooling capabilities, or in an area that has access to wind-generated power.

Data Center Floor Plan & Equipment Setup

Important Considerations Include Power Sources & Airflow For Cooling

by Robyn Weisman

AFTER YEARS OF DEALING with the dust and gnarled cables of a previous IT department's regime, you have been blessed with a new data center. Whether it's a repurposed server room in your own building or a fancy multistory facility at the other end of town, there is little between you and the data center of your dreams but your imagination—and maybe a few budgetary issues.

But your specialty is organizing and maintaining networks, not facilities design. You know the best practices, such as setting up hot and cold aisles, but how do you take an empty space and make it work for you? Here are some tips to help you out.

Determine Your Power Needs

With a new data center, you have the ability to avoid running out of power for your equipment; it just takes some planning, beyond engineering your UPS

connects and cords needed to run a server," he says.

Make A Grid Floor Plan

Large parking structures use letters, numbers, and oftentimes colors to mark sections so that people can pinpoint where they parked. April Sage, marketing director at Online Tech (www.onlinetech.com) suggests taking a similar tack when establishing your floor plan.

"A grid labeling system helps to facilitate your initial setup and your ongoing maintenance," she says. "For example, use letters along the east and west walls and numbers along the north and south walls. This lets you communicate the location of a new rack, or a maintenance issue, or an area needing a KVM quickly and unambiguously instead of trying to describe the location along the rows of racks or having to manually show someone the place you are referring to. It also helps with labeling and routing new equipment and other resources."

Best Tip: Divide Your Equipment Into High-Density & Low-Density Zones

Without proper planning, you may soon find yourself inserting new servers wherever you have space, which means you may be piling a high-density blade server on top of several 1U servers. But such high-density hardware needs to be near the bottom of your racks where the coldest air is, says Dr. Mickey S. Zandi, managing principal, consulting services, SunGard Availability Services (www.availability.sungard.com).

Zandi also recommends that you avoid piling up all your high-density equipment in the same sector. Instead, set up your cabinets so that they hold a combination of high-density hardware toward the bottom and lighter hardware toward the top so that your high-density equipment gets an equal level of cooling throughout your data center. "In a living room, you're not going to pile all the furniture and home-theater equipment in one corner and use the other corner for a TV tray and a few DVDs," Zandi says. "Similarly, you want to distribute your load so that you don't inadvertently create a hot, hot zone that taxes your cooling system and puts it at risk."

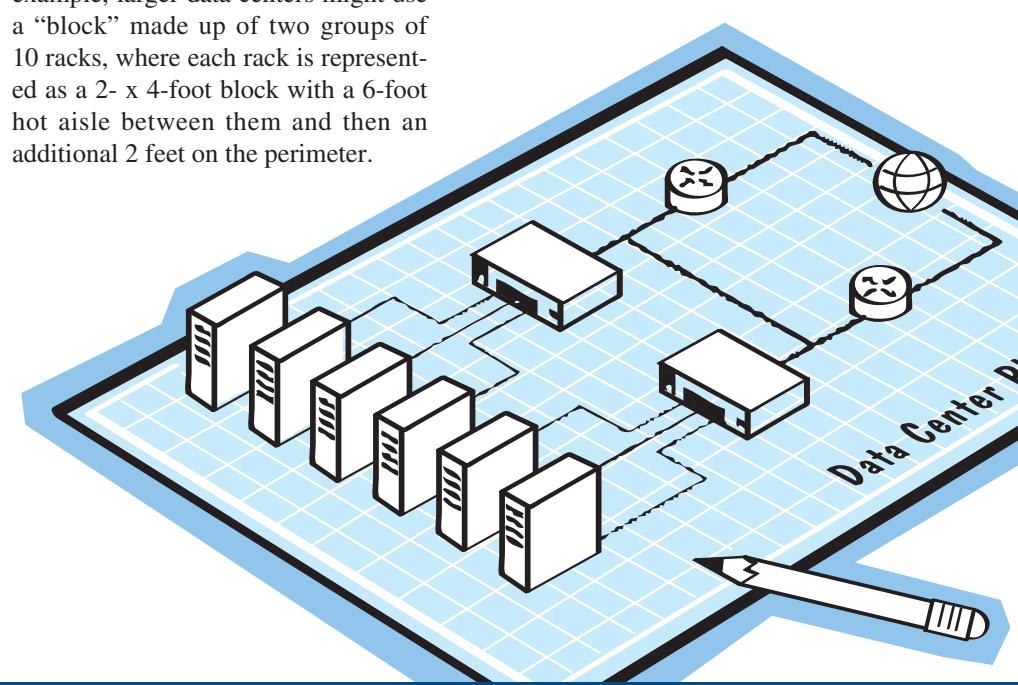
infrastructure in the case of power outages. You also want to make sure you have enough circuits to manage the increasing number of servers and other hardware and the increased demands they place on your resources. Much of this equipment demands higher amperages and oftentimes voltages of around 240 as well as 120, says Randy Ortiz, director of data center design and engineering at Internap (www.internap.com).

"Any time you increase your amperage or voltage, it takes up more space inside of an electrical panel," Ortiz says. "A lot of people [estimate] the number of circuits they're going to need, and then down the line doing a refresh of all their equipment, they discover the new stuff needs double the power and additional power widths that need to be plugged in. Suddenly you're in a situation where you have to upgrade the facility again."

Ortiz recommends staying several steps ahead of what you currently need for power and cooling. "You have to think along those lines because changes can occur every single day, from equipment dimensions to the number of power

Set Up Hot & Cold Aisles Using A Block Layout

Once you've made a grid of your overall space, set up your hot and cold aisles using a block layout, suggests Matt Parker, PE, P. Eng., RCDD, practice leader at IT consultancy Stantec. For example, larger data centers might use a "block" made up of two groups of 10 racks, where each rack is represented as a 2- x 4-foot block with a 6-foot hot aisle between them and then an additional 2 feet on the perimeter.



Key Points

- Make sure you have enough power to handle current and future data center needs.
- Consider using a grid layout for your data center as a whole and a block layout for laying out your hot and cold aisles.
- Your equipment should determine the size and feature sets of your racks and cabinets.

"When the blocks are arranged side by side, it creates a 4-foot cold aisle, and these blocks can then be arranged in any multiples to get the desired number of racks," Parker says. "Once the number of racks is set, we add a 6-foot-wide buffer around the perimeter on all four sides to account for air conditioning and power distribution."

According to Parker, the block should provide enough room to access racks for installation and maintenance and provide the required clearances for cooling and power equipment. "When arranged, the blocks also tend to fit standard structural grid spacing so that the layout can be used to configure spaces in existing buildings," he says.

Let Your Equipment Determine The Size Of Your Cabinets

According to Ortiz, it's easy to assume that the taller cabinet is the better choice, but given that heat rises, you probably don't want to install 8-foot cabinets when your ceilings are only 10 feet. For Ortiz, a good rule of thumb is to shoot for a 1:2 ratio between server cabinet and ceiling.

Also, your equipment will determine whether you need cabinets that are 42 inches deep or 48 inches. "Today's equipment comes with multiple power sources and multiple connectivity requirements, so make sure you have enough depth at the back end of your cabinet to make sure you can deal with all those cables and wires," Ortiz says.

Finally, Ortiz recommends selecting cabinets that have filler panels so that cold air doesn't get lost or muddled between servers and other equipment and the equipment can draw its cold air from the front and exhaust it through the rear. □

IT Pros Confident About Growth

In spite of a widespread and persistent economic downturn, IT professionals seem confident in a return to growth, according to a recent CompTIA survey.

Todd Thibodeaux, president and CEO of CompTIA, says that although IT has certainly been subject to layoffs, "the reality is that the IT industry has been affected to a lesser degree than others, such as finance, housing, and auto manufacturing." Previously postponed IT projects, says Thibodeaux, are now slowly being resurrected.

Part of the positive outlook has to do with the fact that, while there's little that one can do to directly affect the state of the national economy, IT departments actually can dramatically (and often quickly) impact the performance of a company. The result is that executives feel more confident about their company's success because they can directly affect and contribute to that success.



In addition, Thibodeaux says, many executives understand that they cannot afford to hold back just because of a downturn in the economy. "Companies that tread water waiting for the recovery to happen will find themselves well behind those competitors that, despite the tough economy, kept putting dollars into exploring new technology offerings and vertical markets and did not stop marketing aggressively," he says.

Benefit When Times Are Lean

The reality is that the same strategies that served the company well when times were good also benefit the company when times are lean: No matter the economic climate, companies must continue marketing their businesses; investing in new technologies, skills, and staff; and controlling costs. These are constants, regardless of the state of the economy, Thibodeaux says, and companies need to continue to make investments in order to ensure their future success.

In the end, the take-away for business owners and managers is that they must use the current economic climate to better position their companies for when that climate improves. "Small IT firms hoping to survive the economy should seriously examine the markets they're in and the products and services they're offering," Thibodeaux says. "Recessions and downturns are often the best time for such self-examination. Firms that act aggressively (but smartly) now by continuing to market their business and to look for growth opportunities will be much better positioned to thrive when the economy turns around than the firm with a bunker mentality."

by Rod Scher

Oracle To Purchase E-Commerce Software Provider

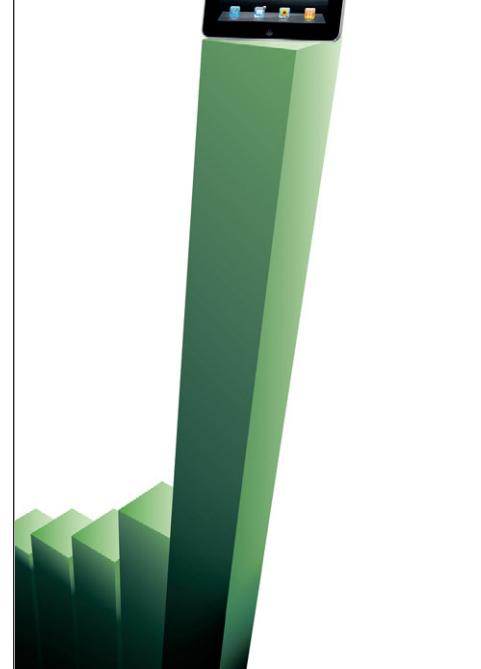
Oracle is acquiring Art Technology Group, a provider of e-commerce software and "demand commerce optimization applications," for about \$1 billion. Oracle characterized ATG's e-commerce software platform as the industry's top-ranked, cross-channel commerce solution and says it will complement Oracle's own CRM, ERP, retail, and supply chain applications, as well as its various middleware and business intelligence technologies. The deal is expected to finalize early next year. ATG CEO Bob Burke says that more than 1,000 enterprises globally use ATG's products and that the Oracle-ATG combination will help customers "enhance the ability to bring all their commerce activities together, creating a more consistent and relevant experience for their customers across all interaction channels, including online, in stores, via mobile devices, and call centers."

Forrester Releases Tablet Predictions ...

Forrester Research sees a bright future for tablet devices. The report estimates that by the end of this year, 13 million tablets will have been sold. By the end of 2015, the number of tablet computers sold will reach 59 million. Forrester says 30% of IT organizations are testing or planning tablet apps and 43% are looking into tablets as viable business devices. Forrester sees tablets in businesses as notebook replacements, paperless alternatives, and as another mobile computing option. Forrester thinks the tablet market would be best served by rallying around just a handful of platforms, including iOS, Android, and HTML5. Before making any significant enterprise investments in tablets, Forrester suggests paying special attention to the drawbacks, such as lack of Microsoft Office and security concerns. The report notes that the iPad is attractive to businesses because employees are often willing to buy their own.

... While The Apple iPad Holds 95% Market Share

According to a report from Strategy Analytics, Apple's iPad owned 95.5% of the tablet market in the third quarter. Apple sold 300,000 of the popular tablets on its first day of sale; in its first 80 days on the market, it sold 2 million units. In contrast, Android maintains 2.3% of the market. Android can catch up to Apple's iOS if improvements are made to the tablet interface, Strategy Analytics reports, and competitors Dell, HP, and Nokia could also eventually pose a threat to Apple's sales numbers.



Execute A Move Successfully

Establish A Plan & Follow The Steps To Make Sure Your Move Goes Off Without A Hitch

by Sixto Ortiz Jr.

• • •

A DATA CENTER MOVE seems like an impossible undertaking. Besides the task of locating or constructing a new site for the data center, there are all of the other items that must be done, such as moving equipment, reconfiguring hardware and applications, and ensuring power and cooling are configured appropriately. Plus, all of this must be done with minimal disruption to internal and external users.

The key to a successful data center move is to carefully plan it in the first place. Here are some tips for making your move a successful one.

Making The Move

When the time comes to move the data center, it is important that the process be done effectively and with minimal disruption to business operations. However, this doesn't mean a frantic race to the finish line. With proper planning, the actual move can be done efficiently and deliberately, thus ensuring that interruptions are minimal while all design and infrastructure goals are realized.

"In the military, they say the battle is won or lost before the first shot is fired," says Del Bullion, director of VDI Communications (www.vdicommunications.com). Documentation is a critical part of this process and must be meticulous, he emphasizes. For example, documenting items such as pre-move to-do's, shutdown and startup steps, patching, and even contact lists will ensure a data center move is a stress-free process.

Correctly planning and documenting a move starts with the physical items: everything from servers to switches to routers and even down to the patch cords, says Bullion. For example, he adds, documentation might include the specific switch ports that devices plug into or the boot and shutdown order for devices.

Dr. Mickey S. Zandi, managing principal, consulting services, SunGard Availability Services (www.availability.sungard.com), says administrators should create an interdependency matrix showing how applications and systems are interrelated and then identify and coordinate the sequences that need to occur during the move. The interdependency analysis will reveal which users are impacted by the move, thus helping administrators communicate with those users before the move occurs.

Equipment Considerations

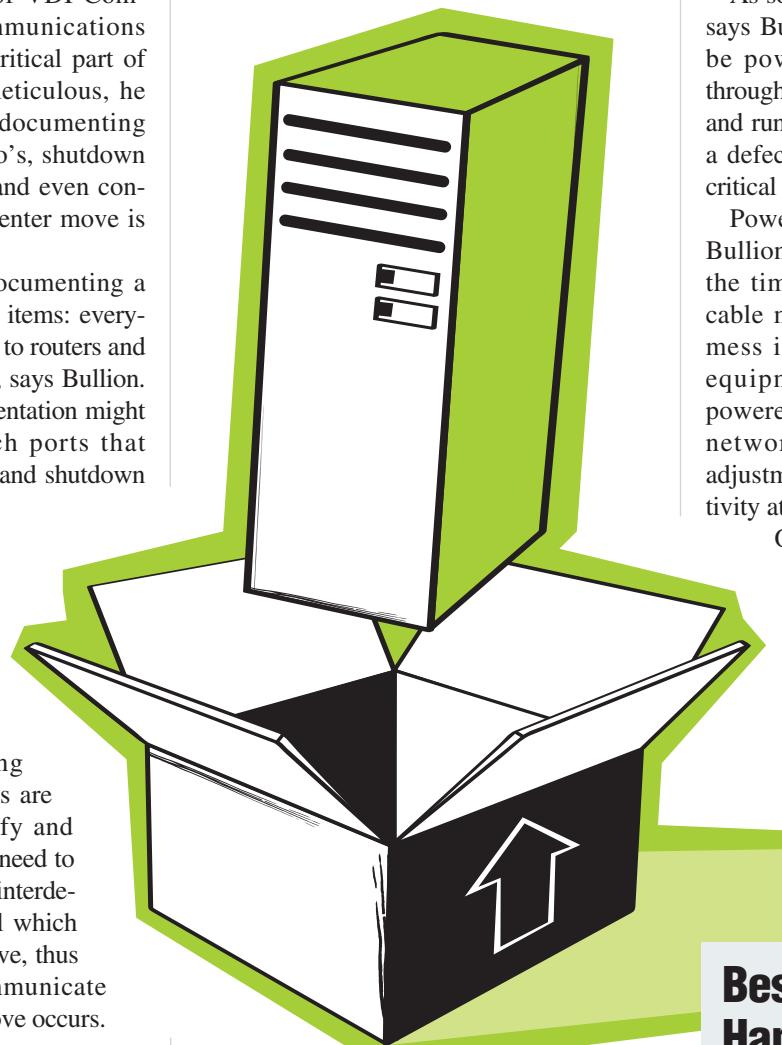
A data center move involves the physical transfer of all sorts of expensive and valuable equipment. This part of the process must be carefully considered and planned; after all, even the simple act of connecting pieces of hardware to each other could potentially result in unwanted disruptions if not done correctly.

In a perfect world, says Marcus Farmer, director of networking and systems at In10sity Interactive (www.in10sity.net), duplicate servers could be purchased for each current piece of hardware, put in place at the new location, and services moved

over to the new data center as time and demand allow. Absent that, Farmer says, communication with affected clients is key so that equipment downtime can be planned beforehand. Also, he adds, any new system must have a burn-in period and must be tested before it is placed into production.

Online Tech President and CEO Mike Klein and Operations Manager Jason Yaeger (www.onlinetech.com) recommend that all equipment destinations be determined in advance and that all equipment be uniquely identified for easy tracking. Also, they add, moving and installing noncritical systems first should be considered. Finally, data center personnel should be present during a move to a third-party data center so that the installation can be reviewed. That way, any misunderstandings over power or network feed requirements can be cleared up to eliminate the chance for faulty installations and unexpected downtime, add Klein and Yaeger.

What about old equipment? During the data center move, a large surplus of unneeded equipment may need to be addressed. The first step, says SunGard's Zandi, is to categorize the surplus equipment into IT-centric or mission-critical infrastructure equipment. IT equipment,



especially those units with hard drives, should be flagged for further scrutiny before donating or selling the equipment due to data loss and security concerns.

The Right Sequence

The secret to a successful data center move is carefully determining the sequences of steps to follow for doing such critical tasks as connecting equipment, powering up systems, and starting up operating systems and applications. The key is having a strong plan in place and following that plan to the letter when the physical work begins.

Key Points

- Careful planning is the key to a successful move.
- Administrators need to carefully communicate with their end users prior to making the move. That way, no one is surprised when moving day comes and systems and applications go down.
- The use of checklists to track start and shutdown sequences, equipment types and connections, and port assignments can remove uncertainty from any move.

Physical installation of critical equipment should begin with meticulously following the documentation prepared during the planning stage, says VDI's Bullion. Personnel should begin by installing supporting infrastructure equipment, such as UPSes, PDUs, and cooling. Next, networking equipment should be installed, followed by server installation; in both cases, equipment-specific cabling should not be installed at this time.

Once networking and server equipment is installed, equipment-specific cabling—but not power cabling—should be connected to all equipment.

As soon as equipment cabling is in place, says Bullion, the UPSes and PDUs should be powered up. Personnel should run through the proper UPS startup procedures and run diagnostics; this is critical, because a defective or damaged UPS can damage critical equipment.

Power cables should be installed next, Bullion says. Personnel should now take the time to route cables neatly through cable management, so an unruly cabling mess is not created. Then, networking equipment should be patched in and powered up. It's important to ensure the network is up by making any needed adjustments required for network connectivity at the new location.

Once the network is active, servers should be patched in and booted in the correct order. When it's verified that servers are operating properly, workstation horizontal cables from patch panels should be patched into the networking switches. Finally, personnel must test access from workstations and verify system users are online and able to work without network hiccups. □

Best Tip: Have All Hands On Deck

The best way to ensure success is to make sure you have the right resources in place prior to making the move, and this includes manpower. Brian George, principal at Corgan (www.corgan.com), says management should make sure that enough full-time employees are available to support planning and implementation. This is not a part-time project. Most of the physical issues to avoid, such as equipment damage and improper connections, are due to poor or complete lack of preparation on the part of personnel, adds Del Bullion, director of VDI Communications (www.vdicommunications.com).

BUYING GUIDE

BUYING TIPS:

Data Center Flooring & Accessories

by Nathan Lake

ONE WAY TO DRAMATICALLY cut data center cooling costs is to invest in raised flooring, because it can play an active role in the way you deliver cooling and manage the heat around your servers. Here, we'll identify a few key elements you'll need to think about before you purchase data center flooring and accessories.

Space. "If your data center was built 15 to 20 years ago, it may have been built on a floor that's shallower than what's required today," says Scott Jacobitti, national sales manager for Snake Tray (www.snaketray.com). Most new raised floor construction requires a minimum of 24 to 36 inches, which is primarily to provide airflow under the floor and cool the electronics in the data center. If you don't have the space available, you may need to redesign the data center flooring to properly handle the heat from your servers.

Power requirements. In most cases, power circuits will not change over the

Buyers' Checklist

- Will you need a new build-out to meet the space necessary for airflow and cable management?
- Do you currently have enough power to provide energy for all the servers, and will there be room for expansion in the future?
- Do you have cable cutouts that will prevent the data center's cool air from leaking through the areas where the cables run to the cabinet?
- Does your data center need an antistatic floor?
- Are all sections of the data center flooring capable of handling the weight and traffic to which they will be subjected?

lifetime of the data center. If you're moving or plan on moving in the near future to a denser server layout, you'll want to build in the power to handle it. "Most cabinets are currently running 10, 15, or 18dBA, and maintaining that energy means that you'll need to bring a tremendous amount of cabling under the floor," Jacobitti adds. "In conjunction with the need for airflow, you may have a situation." You'll need a tray that allows for air movement to go through the tray, rather than blocking the air and creating a hot spot.

Cables to cabinets. There are going to have to be some cut-outs in the floor for your cables, and you'll want to seal around the cable cut-outs to keep your data center cooling efficient. Otherwise, the cold air can escape through the space, which can be a big waste of energy. By installing a grommet with a filler material, you can still have the flexibility to easily access cables without reducing the data center's cooling efficiency.

Surface. "You definitely want a nonreactive surface, because you're dealing with a lot of expensive electronic equipment that's susceptible to ground faults and shorts," Jacobitti says. Flooring options are available that are static-resistant, alternatively known as antistatic, static dissipative, or static conductive. Keep in mind that the floor will need to prevent static against a variety of footwear and humidity conditions. Flooring with a traceable ground path is best

Key Terms

Base. The piece that's attached to the deck by a mastic or mechanical fastener; its height will determine how high the finished floor will be.

Head. Inserts into the base and includes holes to fasten panels or stringers, and there's usually a leveling to let you make fine adjustments to the floor height.

Panel. The material that makes up the walking surface of a raised floor. Depending on your weight and traffic needs, the panel may be made from steel, concrete with steel reinforcing bars, or aluminum. The interior may be filled with a lightweight material to give you the ability to easily move panels.

Stinger. A metal channel or square tube that's attached to the pedestal head that forms a grid and provides lateral stability. May either be snapped into place or fastened from the top with a screw.

suited to data centers because it can migrate the electrostatic discharge away from the electrical equipment.

Weight. Make sure that all areas of the data center raised floor are capable of handling server weight and traffic. "The data center is a dynamic space, and your organization will be moving things in and around the floor, so the entire structure needs to be sound," Jacobitti says. You'll want to be especially careful in areas where you plan to roll in equipment, not just the areas where the equipment will eventually be located. □

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Data Center Flooring & Accessories

Product

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Best For: Enterprises that want the job done on schedule and within budget.

Access Floor Systems



AccessFloorSystems.com offers everything you'll need for a data center floor, including raised floor panels and components, equipment supports, cable trays, trim materials, grommets, ESD carpet and floor, panel lifters, and antistatic mats. AccessFloorSystems.com has been around for more than 25 years, and it offers same-day shipping on most raised floors, components, and accessories.

- Raised floor systems are available for new and used Tate Bare Concore, Woodcore Panels, Tate All Steel Panels, Tate Concrete Panels, and Tate Aluminum Panels
- Replacement panels and components for new and legacy data centers
- Energy-saving solutions for raised floor penetrations and blanking panels
- High-velocity perforated floor tiles and grates to assist with cooling issues

Best For: Enterprises that are building or remodeling the data center floor and want a company that offers a large selection of products and solutions for legacy data centers.

ASM Modular Systems
Raised Access Flooring System

Raised access flooring systems from ASM allow for easy reconfiguration via instant access to wiring and cabling. ASM's raised access floors include technology to address advances in electronic workflow and energy efficiency.

- Incorporates a solid brass positive grounding device in every panel
- Uses nickel chrome plating on critical parts for safety
- Uses a solid tube design that's better than conventional U-shape for high-strength stringers
- Green building elements
- High-pressure laminates available
- Vinyl plastic that's resistant to strong chemicals

Best For: IT administrators who require electrical grounding and want no zinc whiskers and high-strength stringers.

Product

PDU Cables Air Guard Cable Seal



Description

PDU Cables is the sole supplier of the Air Guard Cable Seal product line used to seal access holes for routing cables through a data center's floor. Air Guard seals provide data centers with an immediate energy savings because of the seals' ability to significantly minimize cool air loss while improving static pressure to keep data center equipment from overheating. The Air Guard line of products can seal any data center floor cutout to help solve cooling issues.

- Dual sealing system provides an effective, economical means to eliminate bypass air though cable cutouts
- Reduces air loss in plenum-cooled floors and improves under-floor static pressure
- Extends life of cooling equipment
- Flexible and simple cable routing via removal of floor tiles without disconnecting equipment

Best For: Sealing any size of cable opening in a raised data center floor environment.

Sealco Tacky Mats



Sealco provides a variety of tacky mats to keep your computer or clean room free of contaminants. Each mat is composed of multiple-layer polyethylene film with a specially treated pressure-sensitive adhesive on one side, which catches the contaminants from shoes or equipment. When sheets gather contaminants, the top sheet can be peeled off to expose a new sheet. The sheets are designed to resist adhesive transfer, preventing sheet-to-sheet de-lamination. Ask about our free removable mat holders that allow easy placement and removal.

- Variety of sizes and colors
- Keeps contaminants away from computer equipment
- Optional company logo imprint
- Mat sheets individually removable and numbered
- Non-beveled edges ensure each sheet is contaminant-free

Best For: Entry ways into computer rooms or any area where dust/dirt can track into the computer room.

Staticworx Electrically Conductive ESD Rubber



Staticworx produces antistatic floors that are ideal for data centers and mission-critical operations. All Staticworx flooring comes with a lifetime static-control warranty, and Staticworx EC ESD Rubber is unaffected by footwear choice, traffic, or environment.

- Awarded Seal of Approval by ESD Journal as only fault-tolerant flooring
- No wax or polish necessary—damp mop only
- Installed easily over raised access or concrete floors
- Can cover entire floor or be purchased as floor mats

Best For: Data centers that want to ensure flooring prevents static regardless of footwear worn in the workplace.

PRODUCT SPOTLIGHT

PHYSICAL INFRASTRUCTURE

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Nathan Lake

Bergvik Flooring Modular Raised Floor



In the flooring business since 1970, Bergvik offers the strongest, most stable and modular raised floor available for data centers. Bergvik's engineering department supplies CAD drawings that are suited to your needs.

- The Iso Floor system offers custom panels as an option to fit your equipment depths and allows for optimization to build smaller and smarter rooms; floor heights from 12 to 94 inches
- River Cooling Airflow Panels with high-plume fins provide superior air stratification to cool upper servers when compared to flat bottom panels; the unique 36- x 24-foot panel also allows for more server racks
- Earthquake bracing frames will fit any raised floor and are tested to NEBS standards

Best For: Enterprises that are looking to lower energy costs by up to 40% and add more server racks in the same footprint, increasing their revenue stream.

Julie Industries StaticSmart Flooring



STATIC CONTROL FLOORING

For more than 30 years, Julie Industries has been providing static control flooring solutions to companies and government facilities throughout the world. The StaticSmart line of floor finishes includes ESD carpet tile and positile, ESD vinyl, and ESD rubber tile. All StaticSmart flooring is appropriate for data centers and access floors. StaticSmart offers a lifetime warranty on static protection properties.

- Easy to install
- Wide selection of styles and colors
- Low maintenance requirements
- Permanent static protection without specialized footwear
- Lifetime static protection warranty

Best For: Data centers and networked environments needing fail-safe static control flooring for either access floor or non-access floor applications.

Mainline Computer Access Panel Lifting Tool

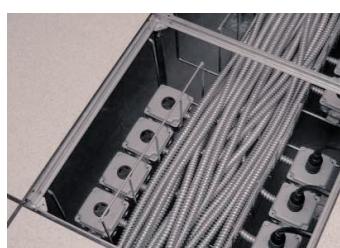


The vacuum created by the double cups on the Access Panel Lifter Tool from Mainline Computer allows easy lifting of heavy weights: Simply place the Access Panel Lifter Tool onto the material and press down to force out the air underneath the vacuum cups, which creates a powerful vacuum hold. The suction is broken when the fingertip-operated bar is lifted. Mainline Computer recommends one lifter for every 500 square feet.

- Heavy cast aluminum handle
- Spring-activated
- Oil-resistant black nitrile rubber vacuum

Best For: Removal of raised floor access panels.

Snake Tray Power Snake Canyon



The patented Power Snake Canyon includes an under-floor cable tray that includes an integrated power module to create an all-in-one system providing both cable paths and up to eight preinstalled power receptacles. In addition to reducing construction costs, the modular cable tray installs almost instantly via a 30-second attachment system to any access floor, with no tools or hardware needed. The cable trays are reusable and won't void a manufacturer's warranty.

- All-in-one cable management and power module design
- Movable and reusable
- 30-second attachment installation to any access floor type

Best For: Installations under access flooring.

Contact: (800) 308-6788 | www.snaketray.com

Tate Access Floors In-Floor Cooling Systems



Tate Access Floors designed three new in-floor cooling products for data centers: the DirectAire airflow panel, the SmartAire variable-air-volume damper, and the PowerAire fan-assist module. The DirectAire panel is designed to deliver airflow to server racks at an angle, which allows 93% of the airflow to enter the face of the rack. The DirectAire panel also eliminates bypass air to save on operating expense in new facilities. The SmartAire dampers give admins electronic control over the amount of air passing through an individual panel, which can help save on fan energy when servers are idle. PowerAire is designed to help in dense server racks and blades where a blast of cooling may sometimes be needed. PowerAire can be throttled up or down based on power requirements.

- DirectAire panels cool up to 28.5kW per rack and can support a design load of 2,000 pounds
- SmartAire dampers allow each panel and rack tandem to be thought of as an individual zone
- PowerAire modules are easy to install in retrofit applications or in new cooling systems
- Three options provide compelling return on investment

Best For: Data center environments that face the challenges of cooling a high-density, variable-load data center.

Contact: (410) 799-4200 | www.tateaccessfloors.com

Upsite Technologies KoldLok Surface Mount Grommets



Improper sealing of cable openings in data centers allows valuable cold air to escape and contributes to ineffective cooling of equipment. The KoldLok Surface Mount Grommet increases current cooling unit capacity, mitigates equipment heat loads, and raises static pressure under the raised floor to improve cool air delivery through perforated tiles or floor grates. KoldLok Surface Mount Grommets snap together to seal cable openings in existing computer rooms with raised floors to optimize existing cooling equipment and manage heat loads. They are designed to seal a variety of existing raised floor tile cutouts and allow flexibility of removing tiles without capturing cables.

- Multiple layers of different-length, opposing-brush filaments eliminate up to 98% of bypass airflow
- Flexibility means admins can re-cable or move tiles with ease
- Will not become dislodged and requires no additional maintenance
- Easy tool-less installation, requires no downtime to install or re-cable

Best For: Sealing cable openings in existing data centers.

Contact: (888) 982-7800 | www.upsite.com

PHYSICAL INFRASTRUCTURE
BUYING GUIDE

BUYING TIPS:

Portable Cooling

by Andrew Leibman

FOR DATA CENTER PROFESSIONALS, cooling is as vital a concern as storage capacity and security: Data centers run more efficiently and reliably with the proper temperature. And uptime is everything. Portable cooling options can often make all the difference in a temperature-strained environment because of their set-and-forget programmability, built-in automations, and modular and mobile form factors. With that in mind, there are several tips and key industry trends you need to be aware of before you purchase portable cooling equipment.

Consider your current hardware and capacity needs. To make the appropriate portable cooling purchases, decision makers need to consider their current hardware and capacity needs and provide enough scalability to grow with the organization's future data needs. Gina Dickson, product manager at Black Box Network Services (www.blackbox.com), says the primary

concern for any organization is how many BTUs it needs to keep equipment at the appropriate temperature. If you go significantly over capacity, then efficiency suffers; too little capacity, and the cooling equipment won't be able to keep up.

Echoing Dickson's advice, Clark Michel, vice president of Atlas Sales & Rentals

Buyers' Checklist

- How many BTUs do you need to keep your equipment at the appropriate temperature?
- Do you need a closed- or open-loop system?
- Where will the cooling equipment be located?
- How much of a concern is noise output?
- Commercial-grade equipment offers superior reliability and durability.

(www.atlassales.com), stresses the importance of capacity planning. "The portable should be sized to deliver adequate cooling capacity in a worst-case scenario, such as an extended heat wave or failure of the central system. In fact, it is not a bad idea to oversize portable equipment slightly to allow for these circumstances."

Open or closed loop? Another major consideration with cooling equipment is whether to select an open- or closed-loop system. Open-loop cooling systems utilize a liquid coolant such as water that is exposed to air and the environment. They tend to have a lower initial cost but also require more frequent maintenance and water treatment, and they suffer from reduced efficiency compared to closed-loop systems. A cooling system that utilizes an air- and environment-isolated liquid coolant is commonly referred to as a closed-loop system.

Closed-loop systems tend to have a higher initial cost but require less maintenance and provide better cooling efficiency compared to open-loop systems.

Know where the equipment will be used. Consider where the cooling equipment will be operated. If it's a dedicated data center manned only occasionally for upgrades and maintenance purposes, then equipment noise is not a major concern. If the cooling equipment will be in an open office or near employees on a regular basis, then low noise output should be high on the list of priorities.

Look for dependable units. Atlas Sales & Rentals' Michel says dependability should be top-of-

Key Terms

BTU (British Thermal Units). Used to measure the amount of energy required to heat a liquid such as water. A single BTU represents enough energy to raise the temperature of one pound of water by one degree Fahrenheit at a constant pressure of one atmosphere. In the context of cooling equipment, BTUs are listed as a given rating per hour.

Closed loop. A cooling system that utilizes a liquid coolant that is isolated from air and the environment.

Open loop. A cooling system that utilizes a liquid coolant that is exposed to air and the environment.

mind. "Always look for a high-quality, commercial-grade unit designed to deliver continuous, 24/7 cooling. The low-cost portables available from home improvement retailers may be adequate for residential use, but they do not have the cooling capacity or durability needed for round-the-clock protection of critical electronics."

Power and restart features. Michel also offers advice on a few must-have features. "Make sure the unit you choose has an automatic restart feature. That way, you can be certain it will start up again automatically in the event of a power blip." He goes on to warn that a backup generator may become necessary, and making sure the portable cooler can run on the backup circuitry is vital. □

Processor Showcase

The Processor Showcase provides a quick glimpse of data center products available from some of the industry's leading manufacturers. Each Showcase provides information on the product's most important features, complete with a product photo, to simplify your buying process.

Product manufacturers and resellers:
To list your products, call (800) 247-4880.

PHYSICAL INFRASTRUCTURE



CS-2HD2/HDE Smart Power Monitor

- Easily add input current load and power monitoring to any existing cabinet
- Quickly added to SAN's or other cabinets that do not have any power monitoring capabilities
- Measure aggregate current draw on each power circuit
- IP access and security/Environmental monitoring
- Provides automated SNMP-based alarms or email alerts

Server Technology Inc.
(800) 835-1515
www.servertech.com

PHYSICAL INFRASTRUCTURE



CS-3AVY Sentry Smart CDU

Provides reliable 3-Phase power distribution. Multiple outlet types distribute multiple voltages via 3-Phase 208V Wye power in-feed.

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- Multiple Voltage Outputs
- Input Current Monitor
- IP Access & Security
- SNMP Traps
- Environmental (Temperature & Humidity) Monitoring
- Branch Circuit Protection
- **NEW!** Linking for Smart CDU (Expansion Modules)



Server Technology Inc.
(800) 835-1515
www.servertech.com

PHYSICAL INFRASTRUCTURE

CW-24V5 Sentry Switched CDU

Mixed Outlet 3-Phase 415V/240V

- Achieve greater efficiencies by bringing 3-Phase 415V to the cabinet and 240V to the devices
- Single-power input feed; 24 outlets per enclosure
- Delivers up to 21.6kW
- Remote power management
- IP access and security
- SNMP traps and email alerts
- Environmental monitoring
- Ability to add an expansion module



Server Technology Inc.
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www.servertech.com/products

PHYSICAL INFRASTRUCTURE

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- Integrates with access floor or mounts directly to the subfloor

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- Modular energy-efficient bus bar technology
- Power and data distribution boxes



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Climate-Controlled Cabinets
(self-contained cooling)



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See the Black Box Cabinet Configurator at blackbox.com/go/CabCon. Or call our cabinets specialist at 888-433-5049.

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Prepare For The Unexpected With Room Alert™

No one knows when or how disaster will strike. We just know the potential is always there. So preparation is crucial to minimizing its impact on computers, networks, users & business.

When disasters occur, there are significant costs in areas that go far beyond the simple replacement of damaged hardware. This is because what happens in the data center or other facility effects the entire organization. If disaster strikes your facility, how will it impact business? Who will get the blame? Could it have been prevented? What will it cost?



Solutions Start At \$195

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• Main / UPS Power	• Panic Buttons
• Flood / Water	• Dry Contacts
• Room Entry, Motion	• Switch Sensors
• IP Network Cameras	• Wireless & More

AVTECH has a full line of powerful, scalable **Room Alert** solutions for real-time environment monitoring in a computer room, data center or other facility. All models arrive assembled with easy to install hardware, cables, sensors, easy-to-use logging & alerting software, printed documentation, unlimited technical support and a '30-Day Satisfaction Guarantee'. Users can typically install in under 10 minutes.

Room Alert products monitor critical environment conditions like temperature, power, humidity, flood, smoke, room entry, air flow, motion and more, alert staff by any method and can take automatic corrective action. There is a model that is right for any organization and budget... yours too!

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* AVTECH is the worldwide leader of IT & facilities environment monitoring products. Purchase online at EnvironmentMonitor.com. Reseller inquiries welcome.

Portable Cooling

Product

Black Box 24U ClimateCab NEMA 12 Server Cabinet



Description

Climate-controlled protection found in Black Box's 24U ClimateCab Server Cabinet lets you install servers without the need for additional cooling or costly infrastructure. These enclosures are NEMA 12 rated, meaning they are ideal for use in indoor locations with falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids.

- Save energy by cooling just the cabinet
- Includes a 6,000 BTU air-conditioning unit
- NEMA 12 rated for protection
- Only 51 x 28 x 31.5 inches, so it can fit where space is limited

Best For: Housing network equipment outside the protection of a climate-controlled data center.

Price: \$4,249.95

Contact: (724) 746-5500 | www.blackbox.com

Black Box 42U ClimateCab NEMA 12 Server Cabinet



The Black Box 42U ClimateCab NEMA 12 Server Cabinet can accommodate larger systems that reside in areas without adequate climate controls, letting users avoid making costly infrastructure changes. These enclosures are NEMA 12 rated for use in indoor locations with falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids.

- Save energy by cooling just the cabinet, not the entire room
- Includes an 8,500 BTU air-conditioning unit
- NEMA 12 rated for protection
- 40-inch depth accommodates most servers

Best For: Server installations outside the protection of a climate-controlled data center.

Price: \$5,499.95

Contact: (724) 746-5500 | www.blackbox.com

Black Box ClimateCab NEMA 12 Wallmount Cabinet



Secure wallmount ClimateCab cabinets provide a compact way to protect and cool sensitive components. Users can install the NEMA 12 rated wallmount cabinets in indoor environments where falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids would otherwise cause problems for equipment.

- Compact wallmount design saves space
- Operates on a standard 115V power source
- Single- or double-hinged
- Choose from a cabinet with a fan or an 800 BTU air-conditioning unit

Best For: Remote sites that have limited space and conditions that are potentially damaging to delicate electronics.

Price: \$999.95 to \$2,795.95

Contact: (724) 746-5500 | www.blackbox.com

Product

MovinCool CM12 & CM25



Description

The MovinCool CM12 and CM25 are ceiling-mounted air conditioners that are just 15.5 inches (CM12) and 20 inches (CM25) tall, making them compact enough to fit above a drop ceiling for spot cooling space-limited installations and server rooms. The air conditioners free up valuable floor space and feature built-in flanges and mounting brackets. The CM25 features a wall-mounted electronic controller that lets users monitor and troubleshoot problems.

- The CM12 provides 10,500 BTU/hr of cool air at 80 degrees Fahrenheit at 50% RH and operates on a standard 115V power source
- The CM25 provides 25,000 BTU/hr of cool air at 80 F at 50% RH and operates on a 208/230V power source
- Both the CM12 and CM25 can fit into tight ceiling spaces, freeing up floor space

Best For: Space-limited equipment rooms and cramped server and telecom closets.

Price: \$2,895 (CM12), \$6,995 (CM25)

Contact: (800) 264-9573 | www.movincool.com/dealer.php

MovinCool Office Pro 12 sold by Rackmount Solutions



The MovinCool Office Pro 12 is a portable spot-cooling air conditioner designed to lower operating temperatures of computers and networking, communications, and office equipment to maximize reliability and hardware lifespan. The Office Pro 12 is self-contained, portable, and features an electronic thermostat and a programmable control panel for tailored cooling when and where you need it most.

- Provides 12,000 BTU/hr of cool air maximum spot cooling
- Programmable digital controller
- Operates on a standard 115V power source
- No costly installation necessary
- Maintains ideal operating temperature for heat-sensitive electronics, down to 65 degrees Fahrenheit

Best For: Offices filled with heat-generating electronics.

Price: \$3,295

Contact: (866) 207-6631 | www.rackmoutsolutions.net

MovinCool Office Pro 18 sold by Rackmount Solutions



The MovinCool Office Pro 18 offers superior cooling capacity without requiring a nonstandard power source. This portable air conditioner protects sensitive data and electronics systems from loss and failure, acting as an insurance policy for your infrastructure. The Office Pro 18 features an intuitive control panel that lets users designate when the unit operates.

- Provides 16,800 BTU/hr of cool air maximum spot cooling
- Operates on a standard 115V power source
- Programmable controls enable weekend and after-hours cooling
- No costly installation necessary
- UL Listed for safe operation

Best For: Heat-sensitive office and data systems.

Price: \$3,655

Contact: (866) 207-6631 | www.rackmoutsolutions.net

PRODUCT SPOTLIGHT

PHYSICAL INFRASTRUCTURE

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Andrew Leibman

KwiKool KPO 12-23 & 12-43 12-TON



The KwiKool KPO portable air conditioners deliver a powerful 12 tons (139,400 BTU/hr) of cooling capacity in a compact size. The unit measures only 62 x 32 x 64 inches—about the size of a typical 5-ton unit—and it's small enough to fit through a standard door.

- Condenser and cold supply and return air can be ducted up to 60 feet using high-static blowers
- Internal circuit breaker allows easy hookup to 208/230-volt (12-23) or 460-volt 3-phase(12-43) models
- Integrated phase and power monitor provides protection from electrical power quality issues
- Low ambient temperature controls with a condenser operating range of 30 to 100 degrees Fahrenheit

Best For: Large computer rooms and emergency cooling during outages.

Price: Rentals from \$450 per day or \$1,325 per week

KwiKool SAC 1411



As one option in KwiKool's Strategic Air Center series of portable spot coolers, the SAC 1411 features microprocessor digital controls and an Easy-Touch control panel. The unit is an air-cooled, 1.15-ton portable spot cooler that operates on a 115V/15A circuit. The SAC 1411 also supports 460 CFM evaporator airflow and 1,200 CFM condenser airflow.

- Provides 13,850 BTU/hr of cool air at 95 degrees Fahrenheit at 60% RH
- Operates on a standard 115V power source
- Operating range between 60 and 110 degrees Fahrenheit
- Easy-access hinged panel with Kwiklocks

Best For: Computer room, server closet, or warehouse use.

Price: \$3,495

MaxPower CoolCube 10



The CoolCube 10 is a unique modular air-conditioning system that users can install standalone or stacked in a 19-inch server rack, above a drop ceiling, or as a portable spot cooler. Features include a programmable control panel, electronic thermostat control, and a 2.5-gallon condensate collection tank.

- Provides 10,000 BTU/hr of cool air at 95 degrees Fahrenheit at 60% RH
- Stackable for redundancy or added capacity
- Operates on a standard 115V power source

Best For: Computer rooms, server closets, and IT facilities with limited floor space.

Price: \$2,600

MovinCool Office Pro 36 sold by Rackmount Solutions



The MovinCool Office Pro 36 delivers 36,000 BTU/hr of spot cooling for sensitive equipment. The portable, self-contained air conditioner requires no costly installation and features an intuitive control panel that lets users program the unit to operate after hours or on the weekend.

- Provides 36,000 ETL-verified BTU/hr of cool air maximum spot cooling
- Operates on a 208/230V power source
- Features an AFCI plug for added safety against electrical arcing
- Supports plug-and-play condensate pump
- Easy-to-use programmable controls
- Self-contained, portable, and easy to set up and operate

Best For: Servers, routers, telecommunications, and other heat-sensitive equipment.

Price: \$6,980

Contact: (866) 207-6631 | www.rackmoutsolutions.net

MovinCool Office Pro 60 sold by Rackmount Solutions



The MovinCool Office Pro 60 delivers up to 60,000 BTU/hr of cooling capacity. This portable air conditioner is designed to manage temperatures for computer networks, communications equipment, and office electronics. The self-contained Office Pro 60 is easy to install—just position the wheeled unit, plug it in, and turn it on.

- Programmable digital controller enables weekend and after-hours cooling
- Operates on a 220V power source
- Provides cooling in the low 60s to maximize the life span of heat-sensitive electronics
- Condensation pump included for uninterrupted operation
- UL Listed for safe operation

Best For: Large office spaces and computer rooms filled with heat-sensitive electronics.

Price: \$9,995

Contact: (866) 207-6631 | www.rackmoutsolutions.net

MovinCool Office Pro 63 sold by Rackmount Solutions



Like its sibling the Office Pro 60, the MovinCool Office Pro 63 delivers up to 60,000 BTU/hr of cooling capacity and is ideally suited for the demands of large office spaces and heat-sensitive electronics installations. This portable air conditioner is self-contained and operates on 460V power for as little as 15 cents per hour.

- Programmable digital controller enables weekend and after-hours cooling
- Provides cooling in the low 60s to maximize the life span of heat-sensitive electronics
- Condensation pump included for uninterrupted operation
- UL Listed for safe operation

Best For: Large office spaces and computer rooms filled with heat-sensitive electronics.

Price: \$12,495

Contact: (866) 207-6631 | www.rackmoutsolutions.net

Environmental Monitoring

Product

AVTECH TemPageR 3ER



Description

AVTECH's TemPageR 3ER monitors temperatures in multiple locations and comes in a standalone or 1U 19-inch rackmount form factor. The TemPageR 3ER lets users log temperature sensor status for immediate alert notification, historical review, and graphing. The unit can send alert notifications via email, email-to-SMS, SNMP, and more. TemPageR 3ER offers an easy-to-use Web-based interface for changing settings and viewing real-time sensor status.

- Real-time sensor status, data logging, graphing, advanced alerting, sensor values in alerts, high and low watermarks, and more
- Advanced alerting by email, email-to-SMS, SNMP, Web page update, and more
- Includes one internal temp sensor and two digital sensor ports for external digital temp sensors (one included)
- Monitor units with built-in Web server, bundled Device ManageR, or any SNMP application

Best For: Any facility that houses critical equipment sensitive to temperature and the environment.

Price: Starts at \$225

Contact: (888) 220-6700 | www.avtech.com

AVTECH Room Alert 26W



AVTECH's Room Alert 26W is an advanced hardware appliance designed for IT and facilities environment monitoring, alerting, automatic corrective action, and wireless sensor monitoring. It can monitor computer room temperatures, humidity, power, flood, room entry, and more in multiple locations. The Room Alert 26W's Wireless Sensor Hubs and Wireless Sensor Hub & Powered Relays communicate via a secure, private ZigBee-compatible protocol, letting users monitor a large number of indoor and outdoor sensors up to 250 feet away.

- Includes built-in digital temp, digital humidity, power and flood sensors, UPS, one external digital temperature, one external room entry, and one powered WiSH sensor
- Features six digital sensor ports and 16 channels for switch sensors or dry contacts
- Advanced alerting by email, email-to-SMS, SNMP, Web page update, and more
- Monitor units with built-in Web server, bundled Device ManageR, or any SNMP application

Best For: Enterprise-level monitoring in any location where running cables may be difficult or impossible.

Price: Starts at \$995

Contact: (888) 220-6700 | www.avtech.com

Black Box AlertWerks II ServSensor (EME108A)



The Black Box AlertWerks II ServSensor is a solid environmental monitoring hub that's easy to manage across your IP network. As a central component of the AlertWerks environmental monitoring system, this unit bridges your network with your AlertWerks Intelligent Sensors to let you remotely view the status of your data centers and other facilities. Monitoring functions include temperature, humidity, liquids, and open doors. Supported applications include remote monitoring of HVAC systems, security equipment, UPSes, generators, and industrial equipment.

- Eight ports accept a range of sensors, including temperature, humidity, water, and airflow
- Extensive management and notification features
- Includes data collection and graphing package

Best For: Organizations that need general-purpose environmental monitoring.

Price: \$650

Contact: (888) 433-5049
www.blackbox.com/go/alertwerks

Product

Rackmount Solutions' Remote Physical Monitor



Description

The Uptime Devices Remote Physical Monitor unit from Rackmount Solutions supports remote monitoring that lets users protect equipment and sensitive electronics. The RPM uses Remote Intelligent Multi Sensors technology, which lets it collect environmental and security data to send alerts via email, SMS, or SNMP when the monitored equipment exceeds the user-defined limits. Each unit has a battery-backed clock for accurate recording, and the device also supports up to 250 different RIMS, located up to 1,000 feet away.

- Real-time monitoring of temperature, humidity, airflow, and dry contacts
- Dry-contact sensors for use with 10-port dry contacts and HEAT RIMS
- Monitor and control third-party power strips
- Two-port power RIMS monitor, track, and manage IT equipment current load and voltage

Best For: Data centers and standalone applications that require temperature, humidity, and remote power management.

Price: Starts at \$799

Contact: (866) 207-6631 | www.rackmoundsolutions.net

Server Technology Environmental Monitoring Control Unit-1-1B



Server Technology's EMCU (Environmental Monitoring Control Unit)-1-1B is an IP-based product that monitors temperature and humidity, features water and fluid sensors, supports four dry contact door sensors, and accommodates additional power-fed analog input sensors. A Web interface provides at-a-glance reports of temperature, humidity, water detection, and cabinet door status.

- Support for HTML and command-line interface
- Supports two temperature and two humidity measurements out of the box
- No additional software necessary
- Mounting tabs included for 0U mounting

Best For: Data centers, colocation sites, Web hosting facilities, telecom switching sites, POP sites, server closets, and any unmanned area that needs to be monitored.

Contact: (775) 284-2000 | www.servertech.com

Temperature@lert Cellular Edition TM-CELL300



Setting up the third-generation Temperature@lert Cellular Edition CELL300 is as easy as plugging it into an AC outlet. The device monitors one or two ambient temperature and/or humidity sensors and sends email, text message, or voice alerts when the readings exceed user-set limits. Built-in battery backup enables the device to operate for up to four weeks without power. The HealthCheck feature lets you know when the device has been out of communication or when it stops functioning, and PowerSense lets you know when there has been a power outage.

- No network required—uses local cellular providers
- Features multiple alarm limits, with alerts via email, text message, and/or phone call
- Reports temperature and/or humidity readings every 15, 30, 60, 120, or 240 minutes
- Capable of storing and forwarding up to 1,500 readings when out of range

Best For: Geographically distributed, remote, or mobile facilities and for situations where monitoring is needed even when power outages occur.

Price: \$399.99 plus monthly monitoring plan (starting at \$15 per month)

Contact: (866) 524-3540 | www.temperaturealert.com

PRODUCT SPOTLIGHT

PHYSICAL INFRASTRUCTURE

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Andrew Leibman

Black Box AlertWerks II ServSensor Junior (EME102A)



The AlertWerks II ServSensor Junior from Black Box is designed to provide detailed insights into the environmental conditions of smaller installations. This unit can be used as the central hub of the AlertWerks environmental monitoring system to track temperature, humidity, liquids, and open doors. Other applications include remote monitoring and management of HVAC systems, security equipment, UPSes, generators, and industrial equipment.

- Two ports accept a range of sensors, including temperature, humidity, water, and airflow
- Java-based Web user interface provides hub access over any IP network
- Sends alerts through SNMP or email

Best For: Organizations with limited environmental monitoring requirements.

Price: \$250

Contact: (888) 433-5049
www.blackbox.com/go/alertwerks

Black Box AlertWerks II ServSensor V4E Hub (EME134A)



Black Box's AlertWerks II ServSensor V4E is a real-time environmental and video monitoring and alerting system that lets users integrate environmental sensors and surveillance cameras into a single seamless remote monitoring system that keeps tabs on your equipment and facilities. This product is ideally suited to data center and office monitoring, but it also works well wherever you need real-time monitoring and surveillance.

- Supports up to eight plug-and-play Intelligent Sensors
- Can be daisy-chained to expansion hubs, increasing the total sensor count to more than 600
- Supports up to four surveillance cameras
- Extensive management and notification features

Best For: Organizations that require security in addition to environmental monitoring.

Price: \$1,395

Contact: (888) 433-5049
www.blackbox.com/go/alertwerks

Black Box AlertWerks ServSensor Contact (EME111A-20)



The AlertWerks ServSensor Contact from Black Box is designed to let you remotely view the status of equipment and devices that use dry-contact outputs to send alarm signals. Data centers and other facilities can use the unit to monitor humidity, liquids, open doors, and critical over-temperature conditions. The device is also well suited to other applications, including HVAC systems, security equipment, UPSes, generators, and industrial equipment monitoring.

- Adaptable to a range of devices such as UPSes and building management systems
- Features eight autosensing RJ-45 ports for connecting sensors plus 20 additional two-wire, dry-contacts
- Rackmount chassis
- Extensive management and notification features

Best For: Organizations that want to customize a monitoring system to their particular devices.

Price: \$900

Contact: (888) 433-5049
www.blackbox.com/go/alertwerks

Temperature@lert USB Edition 4.0



Temperature@lert's USB Edition 4.0 is a low-cost, high-reliability temperature monitoring device that's easy to install and use. Users set their own temperature thresholds and receive email alerts when the temperature reaches or exceeds these limits. With USB 4.0 software and the optional Dashboard browser-based Web interface, users can set up text, email, and phone alerts for multiple alarm limits.

- Real-time temperature alerts and temperature graphs (0.5 degrees Celcius accuracy)
- Connect to any computer or Windows server, including Windows 64-bit systems
- Data files for Web sites and reports available in text and XML formats
- Capable of sending alerts to one or more email addresses
- Multiple alarm limits

Best For: Situations requiring reliable and easy-to-install and -use temperature monitoring on a budget.

Price: \$129.99

Contact: (866) 524-3540 | www.temperaturealert.com

Temperature@lert WiFi Edition TM-WIFI220



Temperature@lert's WiFi-enabled sensor monitors ambient air temperature and emails you when the server, telecommunications, or computer room or other enclosed space gets too hot or cold. The unit doesn't require a PC to run and is built around a highly customizable version of Linux. The WIFI220 displays the current conditions and a graph of the day's temperature readings. When temperature exceeds the user-set thresholds, the device notifies personnel immediately.

- Monitors one or two temperature and/or humidity sensors
- Offers enhanced security, as it does not reside on computers or servers
- Supports AC or PoE power and 802.11b/g wireless
- Logs temperature readings to text and XML log files
- Expandable to up to 10 sensors per base unit

Best For: Upgrade, expansion, and retrofit installations with compact spaces and large-scale deployments where direct connection to computers or servers is impossible.

Price: Starts at \$299.99

Contact: (866) 524-3540 | www.temperaturealert.com

Upsite Technologies Upsite Temperature Strip



The Upsite Temperature Strip, from the LOK family of solutions, features an acrylic self-adhesive backing that lets users install it on any IT equipment or cabinet door where the potential for hot spots and other heat-related issues exists. It accurately provides a visual reading of intake air temperatures based on standards established by the Uptime Institute, ASHRAE, and equipment manufacturers for acceptable operating ranges.

- Colored range indicators display reliable temperatures within two minutes
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Best For: Monitoring temperatures and hot spots on any IT equipment and in data centers.

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Researchers Scale Back Predictions For 2011 IT Spending

According to researchers at Gartner and Forrester Research, IT spending is on the rise, though not as quickly as originally predicted. Forrester's most recent predictions for U.S. IT spending anticipate growth of 8.1% from 2010 to 2011, while Gartner forecasts that worldwide enterprise IT spending will rise 3.1% from 2010 to 2011.

In a report, Gartner Senior Vice President Peter Sondergaard indicated that "several key vertical industries, such as manufacturing and financial services, will not see IT budgets recover to pre-2008 levels before 2012 or 2013," and that "emerging economies continue to be the locomotive of enterprise IT spending, substantially outpacing developed economies." In total, Gartner believes that worldwide IT spending will reach \$2.4 trillion in 2010, and it expects enterprise IT spending to reach \$2.5 trillion. That being said, Gartner believes that the next five years will be a period of lackluster growth, with spending totaling only \$2.8 trillion in 2014.



In Forrester Research's report, the 8.1% increase in U.S. spending was a slight drop from the firm's July estimates, which at the time estimated a 9.9% rise in spending. The report's authors revised the forecast because of new data from the U.S. Department of Commerce and weaker-than-expected economic returns in the second quarter; Forrester indicated that economic growth was expanding at less than 2.5% for real GDP. For global estimates, Forrester Research believes that IT spending will be up 7% in 2011, which is down from its original 7.8% projection in July. For 2010, however, Forrester predicts strong sales in the United States: Computer equipment sales are projected to boom by 19%, the firm says, and software purchases will be up 9.1%.

Trends Affecting Spending

Gartner's report also identified four broad trends that will support changes in IT: cloud computing, the business impact of social computing, context-aware computing, and pattern-based strategy. The impact of social computing will be shown as culture and attitudes alter the enterprise's boundaries between personal and professional activities. Context-aware computing, which involves devices that can anticipate your needs based on local data, can have an impact on the way we do business. "Services not imagined today will use people's location—whether physical or virtual—as the foundation and then use data that determine your patterns of behavior, your desires," Sondergaard said.

by Nathan Lake

SIX QUICK TIPS

Improving The Organization Of Server Cabinets

Control Cabinet Clutter To Protect Your Equipment

by Sixto Ortiz Jr.

• • •

AT FIRST GLANCE, it might seem that the humble server cabinet is nothing more than a metal rack used to house servers, switches, and lots and lots of cabling. It might also seem that keeping server cabinets organized is a low priority when compared to so many other pressing duties data center administrators must tend to every day.

The fact is, server cabinets today are packed full of expensive equipment that is critical to a properly functioning business. Keeping cabinets organized not only enhances the appearance of the data center, but it can also contribute to reductions in costly mistakes and improved server performance and efficiency. Read on for some useful tips to help keep data center cabinets neat and valuable equipment functioning at peak efficiency.

Solve The Cabling Conundrum

An obvious area where server cabinet organization can make an impact is cabling. A simple approach to organizing cabling in a server cabinet is to run data cables along one side and power cables along the other, says Arthur Zards, co-founder and president of Internet service provider XNet (www.xnet.com). All cables, he says, should go from the server, then horizontally to the cable tray (or side rack if there is none), and then straight up or down. Following this simple process saves time whenever a server needs to be removed and power and Ethernet cabling needs to be disconnected.

Improper cabling can have an impact on airflow at the server cabinet, an important consideration for today's high-density, multiple-server configurations. Steve Suesens, category manager for Staples Technology Solutions (www.staplesadvantage.com), says administrators should carefully plan their cabling. This includes doing things such as labeling cables, removing legacy cabling, and adopting fiber over copper.

Not all cabling approaches present the right answer. Randy J. Ortiz, director for data center design and engineering at Internap (www.internap.com), says administrators should stay away from cable management arms that fold the cables on the back of the server because they impede outlet airflow from the server. This can become an airflow management nightmare, so Ortiz does not recommend it unless a cabinet only has a few servers and cabling can be managed with the arms in place.

Bring ToR To The Rescue

ToR (top of rack) wiring is the installation of switches at the top of each cabinet,

says Raymond du Tremblay, vice president and director of Technology Services at WSP Flack + Kurtz (www.wspgroup.com). Placing switches at the top of each cabinet, he says, allows for easier management of intra-cabinet patch cords routed to each server.

The other methodology, du Tremblay says, is to place wiring cabinets at the end of server rows (EoR) for wiring servers to core switches. But, he adds, ToR provides better organization than EoR. In addition, ToR solutions complement deployment by shortening cable runs and facilitating the replication of rack configurations. Only fiber optic cable is then needed to connect individual server cabinets to the core switches, he says. Increased use of fiber instead of copper reduces congestion and allows horizontal fiber runs to support different I/O connectivity options, such as GbE, 10GbE, and Fibre Channel. Using fiber, du Tremblay says, has an additional benefit: It protects technology investments because evolving standards are likely to be implemented in fiber optic cabling instead of copper.

Manage Airflow

Airflow is a critical component for a server cabinet. Improper airflow can lead to inefficient cooling and heat dissipation, which can eventually turn into vexing equipment issues and even failures. A simple way to enhance airflow is to keep server cabinets organized, which reduces the chances for unwanted obstructions.

Internap's Ortiz recommends that administrators purchase cabinets deep enough to accommodate both cable organization and airflow at the rear of the cabinet. This, he adds, is a growing concern as more equipment is crammed into the same cabinet. That same equipment, Ortiz says, requires additional power and connectivity ports, which only adds to the cable management nightmare and airflow issues that many data center administrators face today.

Another approach to enhance airflow, Ortiz says, is the use of blanking plates to fill equipment gaps. This prevents hot air from recirculating toward the front. Even though this practice is common sense, many administrators forget to do it. Also, he adds, administrators should use perforated front and rear doors when using the room for air distribution.

Consider Equipment Placement

When thinking about server organization, administrators should also consider the placement of equipment. Improper

equipment placement could affect airflow, to say nothing about potential safety issues.

For example, Internap's Ortiz recommends that data center personnel place heavier equipment at the bottom of the cabinet and lighter equipment toward the top. The reasoning here is simple: This approach prevents employees from sustaining back or other types of injuries

Most Practical Tip:

Address Legacy Environments

Raymond du Tremblay, vice president and director of Technology Services at WSP Flack + Kurtz (www.wspgroup.com), says administrators in legacy environments can do a number of things to enhance server cabinet organization and overall effectiveness. For example, horizontal fans can be added to 1RU server configurations to facilitate airflow inside cabinets. Also, cabinets and floor tiles can be arranged to maximize under-floor cooling because fans provide spot cooling to congested cabinets. And, clustering of server cabinets next to CRACs enables servers to efficiently use the HVAC system.

Best Tip:

Color Code It

Randy J. Ortiz, director for data center design and engineering at Internap (www.internap.com), recommends that administrators use color-coded cabling for different services. Cable management should always include proper segregation and labeling; the use of color coding and number labeling is important so personnel can always determine what goes where and what it is used for. This simple approach, he adds, takes the guessing out of the picture.

when handling heavy equipment placed awkwardly out of reach.

Staples' Suesens says administrators should develop a standard and stick to it. Too frequently, he says, data centers feature different sizes, colors, shapes, and manufacturers of rack equipment. This haphazard approach, he says, can impede a consistent cabling strategy, affect airflow efficiency and equipment mounting, and just look unprofessional. Also, he adds, future equipment needs should be considered; for example, administrators should factor potential upgrades to larger-footprint servers, which could render current server cabinets obsolete.

Ortiz also recommends the placement of higher power draw equipment at the bottom of the cabinet when using a raised floor for air distribution. As hot air rises, Ortiz says, the temperature between the bottom and top of a cabinet can vary greatly, so placing the equipment with the higher draw requirements at the bottom of the rack makes sense in terms of heat dissipation. □

BONUS TIPS

■ Use LCD rack consoles.

These consoles can help personnel work on rack equipment without the need to roll an extra monitor around, says Steve Suesens, category manager for Staples

Technology Solutions (www.staplesadvantage.com).

■ Take your time. Arthur Zards, co-founder and president of Internet service provider XNet (www.xnet.com), says administrators should take their time running cable and should tie wrap often. This can save time in the long run by avoiding messy cables that are difficult to trace.



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FEATURE PACKAGE

Key Data Center Projects

We provide tips and advice to help ensure your next data center project is a success.

Streamlining Storage Systems | 26

■ Storage consolidation has emerged as a key opportunity for data center managers focused on boosting performance, reducing risk, and reining in costs.

Standardizing Processes & Procedures | 27

■ Making sure that all employees handle processes and procedures in the same way can be tricky, particularly if everyone does tasks in their own way already, but the rewards of establishing standards can be formidable.

Improve Data Center Monitoring | 28

■ Is this the year you finally get around to implementing a comprehensive monitoring plan for your data center? Odds are you're at least considering it.

Upgrade Your Servers | 28

■ Whatever the reason for a server upgrade, there are key issues to consider before you embark. To guarantee project success, it's good to be aware of potential roadblocks and what you can do to prevent them.

Streamlining Storage Systems

Storage Consolidation Efforts Can Offer Many Benefits, But They Require Careful Planning To Be Successful

by Carmi Levy

• • •

STORAGE CONSOLIDATION has emerged as a key opportunity for data center managers focused on boosting performance, reducing risk, and reining in costs.

A survey published in September by CompTIA confirms storage-related issues are increasingly top-of-mind for data center planners. According to the survey, the top key data storage-related issues they face are server consolidation and data security, each

Key Points

- Know your current and target storage needs. Work with business partners to benchmark storage requirements and look beyond flashy new features.
- Smarten up your data management by investing in data deduplication and resource management to tighten control over the environment before implementation.
- Build the business case. Storage is the fastest-growing cost driver in the data center. Use underlying cost data to justify current and future consolidation investments.

at 62%, and the growing use of virtualization, at 61%.

Furthermore, according to data published by HighVail Systems, although servers occupy 27% of computer room space today and storage 23%, storage is growing faster than all other data center technologies. Storage is also the fastest-growing power user in the data center, with up to 200% compounded annual growth rates in power demand. Failure to consolidate will, in many cases, drive data center usage costs even higher.

But simply diving into consolidation by, for example, dropping in a new storage-area network is a recipe for disaster. The increasingly interconnected role of storage infrastructure in overall IT and business strategy raises both complexity and risk. Consider the following tips before moving ahead with a consolidation plan.

Understand Current & Projected Storage Requirements

Sizing the environment is a crucial step in any storage consolidation initiative. You can't update your storage infrastructure until you get a handle on the needs that it fulfills. Work with business partners to build a complete application and data inventory and then project needs out at least 18 to 36 months to ensure the roadmap can handle evolving needs.

Moosa Matariyeh, enterprise storage specialist at CDW (www.cdw.com), says

aggressive business growth strategies demand highly scalable or data-in-place upgrades. Matariyeh recommends studying the enterprise's disaster recovery plans and obtaining RPO (recovery point objective) and RTO (recovery time objective) figures for each application.

Assess Data By Type & Value

Treating all data in the same manner can unnecessarily increase the cost of a consolidation project. Studying how different types of data are used can result in more rational decisions about where data is stored—an approach that can help IT avoid spending on unnecessary capacity or capability.

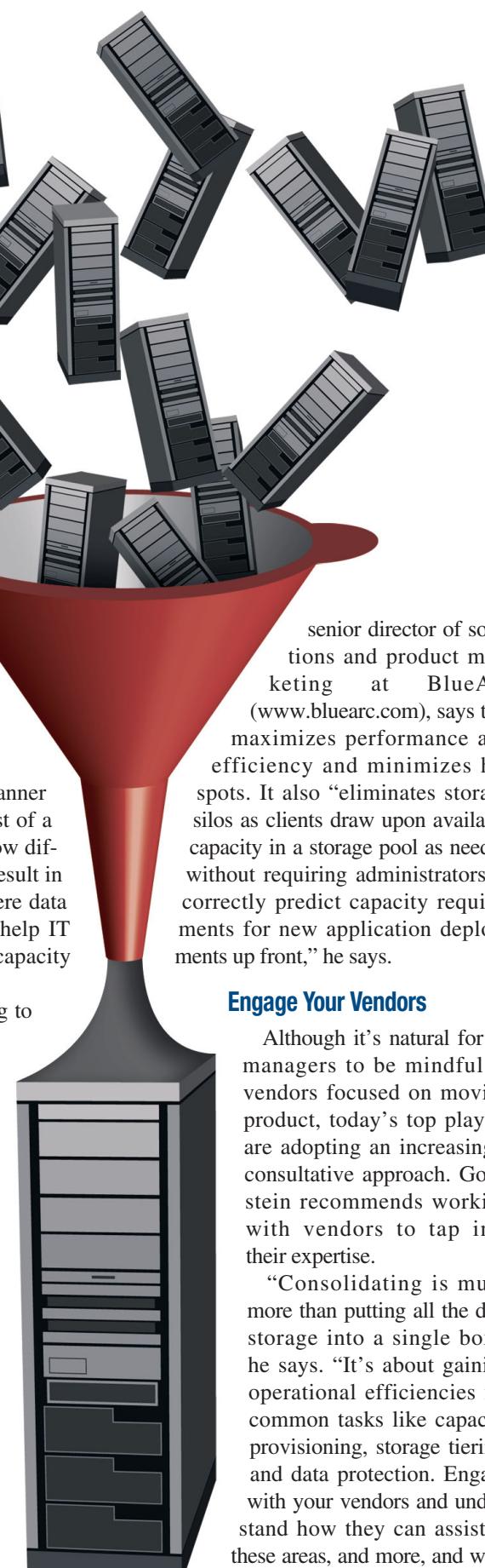
"Simply consolidating everything to one tier makes for simple management but can be expensive," says Josh Goldstein, vice president of marketing and product management at Cirtas (www.cirtas.com). "Businesses need to think about whether data should live on expensive SSD, Fibre Channel, or SAS drives; SATA drives; or in the cloud."

Watch Your Workload

Pre- and post-consolidation environments are affected differently by varying levels of demand and workload. Study workloads and related storage environment performance in advance to avoid surprises later on.

"Consolidation can place lots of strain on storage as disparate workloads are centralized," Goldstein says. "Make sure to monitor workloads well ahead of the project and size the consolidated storage appropriately."

Additionally, when evaluating consolidation options, ensure the chosen technology is capable of balancing data across a common, virtualized data pool. Ravi Chalaka,



Engage Your Vendors

Although it's natural for IT managers to be mindful of vendors focused on moving product, today's top players are adopting an increasingly consultative approach. Goldstein recommends working with vendors to tap into their expertise.

"Consolidating is much more than putting all the disk storage into a single box," he says. "It's about gaining operational efficiencies for common tasks like capacity provisioning, storage tiering, and data protection. Engage with your vendors and understand how they can assist in these areas, and more, and what the expected impact will be."

Focus On Minimizing Redundancy & Unstructured Data

Storage consolidation starts with more intelligent treatment of the data itself. For example, deduplication reduces multiple instances of identical data, which subsequently reduces ongoing demand for

storage resources at all tiers. Data from HighVail confirms that emailed attachments are typically saved at least five times and can be deliberately duplicated as often as eight times. This doesn't include backups, which only add to these multiples. Use pattern analysis during both data acquisition and at the block and file levels to reduce storage redundancy and improve network performance.

Likewise, be sure to look at unstructured data. According to APTARE CEO Rick Clark (www.aptare.com), upwards of 80% of all enterprise data is unstructured. Measuring and controlling it—by identifying redundant, unnecessary, or even unwanted files and moving appropriate data types to lower-cost storage tiers—must be a key target of consolidation efforts.

Clark says consolidation initiatives can benefit from vendor-independent storage resource management software that looks at both utilization and allocation. This helps CIOs "gain insight into actual storage efficiency down to the application level and save real dollars through storage reclamation and deferral of new storage purchases." It also allows easier reallocation of so-called dark—or unused—storage for other applications.

Consider Outsourcing

Storage consolidation planning can be a complex and time-consuming process. Consider hiring third-party experts to more effectively balance planning and ongoing operations. "Using internal IT teams to do work on keeping the lights on and storage initiatives in parallel may result in delayed implementations and added risks of existing service degradation," says Lalit Bhangale, senior solution architect at Patni Computer Systems (www.patni.com). □

Best Tip: Don't Buy Your Vendor's Next Upgrade

When planning a storage consolidation initiative, many shops often look to their existing storage infrastructure and simply buy their existing vendor's newest model. Moosa Matariyeh, enterprise storage specialist at CDW (www.cdw.com), cautions against this.

"Since your needs have changed greatly since you first purchased your existing technology, just picking its successor as your new platform may prohibit you from taking advantage of new developments that could increase performance and/or efficiencies," Matariyeh says.

FEATURE PACKAGE

Standardizing Processes & Procedures

Make Sure Everyone Follows The Same Processes To Streamline Operations & Increase Efficiency

by Elizabeth Millard

• • •

MAKING SURE THAT all employees handle processes and procedures in the same way can be tricky, particularly if everyone does tasks in their own way already, but the rewards of establishing standards can be formidable. Not only can a data center increase overall efficiency, but it can also improve new equipment provisioning, maintain equipment with more ease, and even boost security. Here are some tips for increasing standardization in a data center.

Develop A Centrally Managed Process

According to Kris Domich, principal consultant at Dimension Data (www.dimensiondata.com), the first step in standardization, especially with establishing processes for maintaining equipment, is to create a centrally managed process with associated procedures.

Key Points

- A process for equipment maintenance should include regular reporting as well as a mechanism to audit the integrity of the procedures.
- Create a training program so that each employee understands how his role affects others and where that role fits in the standardization process.
- Having senior-level buy-in makes it easier to justify costs and identify problem areas.

The overall maintenance process must include regular reporting as well as a mechanism to periodically audit the integrity of the procedures and the data captured about the state of each asset, he notes.

Increase Training & Reporting

The next step is awareness and training, says Domich: "Each party that is affected needs to know what their roles are and how the quality of their execution affects others."

Processes need to be documented in a quality management plan in a step-by-step fashion, accompanied by a RACI matrix, says Virginia Kirby, vice president of global infrastructure outsourcing at Capgemini (www.capgemini.com). The RACI matrix, which stands for "responsible, accountable, consulted, and informed," identifies roles and responsibilities, dividing roles of each individual into those particular buckets.

Training should be mandatory for new hires, with refresher training required annually, Kirby suggests. Also, reporting on process alignment should be done on a weekly or monthly basis. "IT managers need to communicate this reporting to staff and develop plans to remediate any shortfalls," she says. "Tie the employee adherence to the established processes and procedures to their annual performance goals."

Blend In Provisioning & Security

Domich notes that new equipment adds assets to the existing process and schedules.

"The process should have procedures for ensuring that newly provisioned assets are appropriately recorded and placed into the appropriate maintenance schedule," he says, adding that this is true for physical as well as logical (such as virtual machines) assets.

Additionally, security and compliance are part of every process, including standalone processes, notes Kirby. For example, hardening servers is a good example of an everyday process that's incorporated into commissioning, while a recurring patching plan would be a standalone process. She adds that a process for high-alert or unplanned security items needs to be part of the overall security landscape even if it is only for discovery and remediation formation.

Consider A Business Process Management System

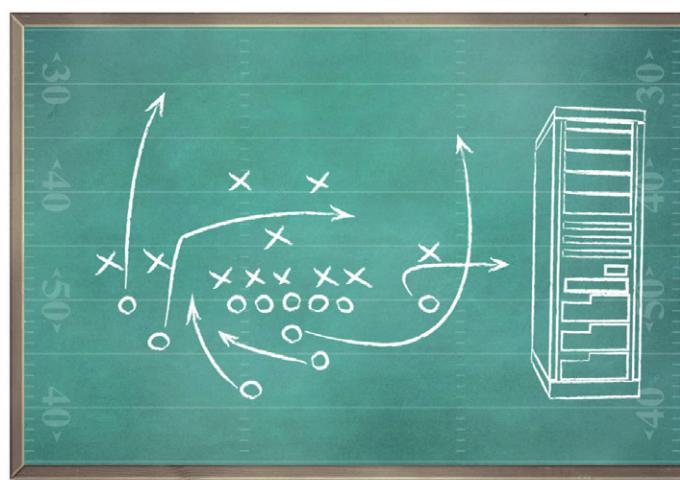
As a management approach, BPM (business process management) focuses on aligning all aspects of an enterprise, and technology is a major component of the strategy. According to John Fishell, vice president of product management at Apriso (www.apriso.com), a BPM-based platform allows organizations to establish end-to-end processes, enabling a single, interoperable system.

"The need for process consistency extends across all manufacturing operations, including production, quality, warehouse, and maintenance," he says. "But there is a need for more than just consistent, enterprise-wide processes. Collaborative interoperability is critical." If a quality check indicates a piece of equipment trending out of control, for example, an interoperable BPM system can allow the manager to shut the system down, trigger a maintenance task, requisition the appropriate resources, and reallocate production to available equipment.

Fishell notes that BPM-based solutions offer robust capabilities to simplify process creation and management, and at the same time, they enable continuous improvement so performance and quality standards can keep improving.

Get Senior-Level Buy-In

Key to the efficient planning and implementation of IT process standardization is to get senior-level buy-in, specifically of the benefits and costs of standardization, advises Jeff Roth, director of technology risk advisory services at RSM McGladrey (www.mcgladrey.com) and member of the IT GRC task force for ISACA (www.isaca.org), a nonprofit association focused on developing knowledge and practices for information systems.



"We must be able to demonstrate how the key stakeholders—business process owners, data owners, and customers—will benefit," Roth explains. "Once we have this buy-in, we have their ear and can look at key pain points that each have and, through affinity diagrams, can focus on key areas where standardized processes will deliver the greatest impact." Also important during this strategy is to establish "cross-functional tiger teams," he adds, to define, measure, analyze, improve, and control the newly standardized process.

Don't Make Room For Exceptions

The No. 1 misstep that Domich observes IT managers making is allowing too many exceptions to processes and procedures. "An exception is really anything that is permitted without accurately following the established procedures," he says.

He believes that exceptions should be raised immediately with the process owner so that the process can be considered for an update and to ensure that appropriate sub-procedures take place. This will avoid a cascading corruption of data, Domich notes. □

Best Tip: Establish A Set Of Goals

Before developing a standard for any procedure or process, make sure there's a clear direction and a set of goals around what will be more efficient, suggests Kris Domich, principal consultant at Dimension Data (www.dimensiondata.com). Then, perform due diligence on the predominant existing methods that the data center wishes to standardize.

"Standards cannot be developed in a vacuum," he says. "Take note of how the process is being accomplished today both within and outside your organization."

Factoring in the experiences of those already performing tasks will allow you to ensure you are taking the best methods and foster a sense of ownership amongst those who will ultimately be asked to adopt the new standard." He adds that acceptance will breed efficiency and elicit the uniform results that are sought through standardization.

Companies To Stick With WinXP

A recent survey reveals that almost half of companies still using the Windows XP OS plan to continue running it even after Microsoft ends support April 8, 2014. The report, conducted by Dimensional Research, surveyed more than 950 IT professionals and found that 48% plan to keep Windows XP, while 47% plan to replace the 9-year-old OS with a newer version of Windows. According to the report, enterprises are making significant strides in upgrading to Windows 7: 6% of companies surveyed have fully deployed the new OS (up from 1% in January), and 38% have at least partially rolled out the new OS (up from 15% in January).

Government Readies Cloud Security Guidelines

The White House, in conjunction with the General Services Administration, released a preliminary 90-page cloud security guidelines document as part of its Federal Risk and Authorization Management Program. The FedRAMP program is designed to help government agencies successfully and securely adopt cloud computing technologies to help make government more efficient and less costly. The document's three chapters cover a baseline of security requirements, continuous monitoring, and an approach to potential assessment and authorization of cloud systems. The measures developed by FedRAMP are needed to help ensure successful multi-agency use.



Mobile Phone Sales Show Significant Growth

Mobile phone sales rose dramatically in the third quarter, up 20% from the same time period a year ago, a report from ABI Research shows. About 346 million phones were sold in the third quarter. Although some of the increase may be because many consumers held off purchasing handsets during the recession, it's still a significant increase. There is currently a component shortage, and although some mobile phone makers have been negatively affected by it, many have experienced no ill effects.

Social Networks Connect Friends, Acquaintances

In a finding that should surprise absolutely no one, it turns out that part of the reason for the popularity of social networks is that they make us feel more connected. A recent Harris poll shows that 58% of those surveyed know what their friends are doing, thanks to social networking, but it also reveals that many now personally interact with those friends less often than before. The poll, which surveyed 2,258 adults, also showed—again, not surprisingly—that young users connect online more often than older social networkers; the younger users also report fewer face-to-face encounters with friends.

Improve Data Center Monitoring

Set Up A System That Gives You An Accurate Picture Of Your Data Center's Health

by Dan Heilman

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IS THIS THE YEAR you finally get around to implementing a comprehensive monitoring plan for your data center? Odds are you're at least considering it. Data center monitoring can give you an accurate real-time snapshot depicting the current state of your enterprise's critical infrastructure and, in the process, help you save money and avert disaster.

Assess Your Space & Your Monitoring Needs

Michael Sigourney, founder and president of AVTECH (www.avtech.com), says managers should fully evaluate the physical infrastructure where the data center is contained and learn how windows, doors, vents, plumbing, and HVAC systems might affect the room and equipment. Even the floor type (raised, carpet, tile) is a factor.

Also, Sigourney says, review how the space has been used in the past, including parts of the structure that may not have been tested yet. "What structural changes have been made in the recent months and years?" he says. "For example, a new roof that hasn't held snow could have drainage issues when melted snow freezes and backs up over the roof flashing and drips into the data center. Computers don't swim, so naturally, water around the servers is a problem."

Sigourney also recommends tracking who has access to the room and who is responsible for it from the perspective of IT, facilities, and security. "How does traffic move through the facility? Are managers onsite or remote? Do they travel and need to see things remotely? Does a solution need to have redundant alert paths? You might consider actions that can be automated to respond and protect equipment, such as shutting down servers, starting and stopping applications, logging off users, and so on," he says.

Environmental monitoring equipment can make sure things in your data center are as they should be when you're not there to keep an eye on it. Such a system generally will monitor conditions in temperature, water, and humidity. That last item is sometimes overlooked, but high humidity can lead to corroded parts, while low humidity can cause excess static electricity.

"It's vital to have real-time, organization-wide access to physical security and environmental data that can threaten the systems, infrastructure, and assets that are critical to running a business," says Robert Haffner, national product manager at ATEN Technology (www.aten-usa.com). "Data center security and environmental monitoring is necessary for organizations if they want to view and manage their company-wide physical infrastructure

locations for security threats and environmental degradation."

Prepare To Succeed

Ensuring the success of a data monitoring initiative is a complicated process. Gina Dickson, product manager for Black Box Network Services (www.blackbox.com), says job one is to understand the solution you choose for monitoring. "There are a lot of questions you need to ask," she says.

Key Points

- Taking stock of your data center's environment can cut down on monitoring headaches. Keep a close eye on heat, water, and humidity in particular.
- Shop around and don't buy a system with frills you won't be using.
- Understand the time and personnel necessary to properly implement your system.

"What features does it have? What are the limitations? How do you plan to implement the system? What reporting is available? How long is data stored?"

You need to diligently plan everything you want to monitor, as well as the locations where these things will be monitored, according to Dickson. "This will enable

you to determine how many sensors you need," she says. "In addition, you will be able to determine the length of cable necessary for sensors."

Location will also determine the need and location of temperature or humidity monitoring, security sensors, and water detectors.

Keep It Simple, But Not Too Simple

Even if you have the budget to go all in on a data monitoring system, you shouldn't buy a lot of bells and whistles you don't need. "People tend to spend a considerable amount of money on a comprehensive monitoring system [and] then fail to take full advantage of its capabilities," says Sunny Puri, vice president at Environmental Systems Design (www.esdesign.com). "The key is to understand upfront what the organization's needs are and to size the solution to meet those goals, with some room for growth. Monitoring can add to capital investment, so it makes little sense to have excess capabilities that have been paid for but are not being used."

Black Box's Dickson says similar problems can arise when a data monitoring system goes over budget before it's even out of the box.

"Sometimes the solution is not fully implemented

Upgrade Your Servers

Compatibility, Efficiency & Density Are Key Considerations As You Start This Project

by Chris A. MacKinnon

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IF YOU HAVEN'T UPGRADED any of your servers over the past year, you're likely due for an upgrade. Perhaps your servers are slowing down or noisy, or maybe they're out of warranty. Whatever the reason, there are key issues to consider before you embark on an upgrade. To guarantee project success, it's good to be aware of potential roadblocks and what you can do to prevent them.

Ken Oestreich, vice president of marketing at Egenera (www.egenera.com), says it's important to upgrade data center servers for a couple of main reasons. "Typically it's a combination of power, efficiency, and performance, and also continued hardware compatibility with new or upgraded software," he explains. "A perfect combination is when a company shifts to a virtualized environment or virtual desktop environment: You need more powerful machines that support more memory and that have bigger I/O pipes."

For Alan Mamane, CEO of Server Racks Online (www.server-rack-online.com), server upgrades are essential for support reasons. "Every part of the server is in continuous evolution," Mamane explains. "As newer parts are brought to market, old parts become unavailable and fall off the support list, forcing servers into obsolescence. The

same is true on the software side as manufacturers continue to improve feature sets and performance; backward compatibility is not always possible." Mamane says both hardware and software upgrades enable improvements in functionality by improving features, performance, energy efficiency, and eco-responsibility.

Key Points

- Advances in server hardware and software are constantly taking place and can quickly render existing equipment obsolete.
- Key issues to consider when upgrading servers include compatibility, density, and supportability.
- Watch out for unrecognized risk. Develop risk management plans to discover inevitable problems early and deal with them appropriately.

Key Issues

According to Scot Heath, CTO at 42U (www.42u.com), one of the key issues to consider when upgrading is density. Heath says that reports have shown that high-density data centers provide lower cost of ownership than their low-density counterparts; however, he notes, "While this is certainly a positive outcome, the challenge of



because it was over budget," she says. "Avoid this by thinking things through before you buy. Know what you need and how much the total solution will cost."

Speaking of money, employing a power monitoring system can rack up savings in the long run and should be strongly considered, according to Brandon Siri, marketing coordinator at Server Technology (www.servertech.com).

"Data center and IT managers need to start planning power monitoring early in their design cycle," he says. "Getting the right cabinet power distribution unit installed ensures that you're using all the available power and have the correct outlet types."

Another common error that managers make when considering a data monitoring system is underestimating the time needed to kick off a monitoring project. To avoid this,



supporting high-density gear in a low-density environment is significant."

Another key issue, in Mamane's opinion, is compatibility. "First and foremost is the compatibility of all the various pieces, both software and hardware," he says. "Assumptions here can be very costly and, especially with larger applications (database servers, etc.), it's uncommon to change all the pieces at the same time, so making sure that items like the system components that will remain (storage array, applications, I/O schemes, tape backup, etc.) are compatible with the new server, OS, IO card, etc., is crucial."

While support and compatibility are key issues, the success of a server upgrade project does not come about without concrete planning. Bohr-Young Tsao, product manager at AMAX (www.amax.com), says data center and IT managers can ensure the success of their projects by setting realistic goals and matching requirements to a budget. "Extensive research should be conducted on industry and technology trends as well as product features," Tsao says. "Managers will need to pay close attention on services, support, and products." Tsao also recommends good long-term relationships with server vendors, which can be more valuable than a short-term discount.

Oestreich says Egner's position on server upgrading is simple: Converged infrastructure and unified computing eliminates 99% of infrastructure-related issues. "Both old and new servers have virtualized I/O," he says. "We can then use converged infrastructure technologies to move the old server profile onto the

new physical server without the use of a hypervisor and without any code, I/O, or networking changes." Oestreich says he believes that this will become a broadly adopted approach to migrating physical and virtual applications in the future.

Avoid Mistakes

Heath says if you wait too long in the server upgrade process to engage facilities, it can mean disaster if there are facilities upgrades necessary. "Something as simple as a three-phase circuit or as complex as a chiller upgrade may be necessary, and the lead time on such a project can be significant," Heath says, adding that keeping IT and facilities in sync is more important as density increases. Unlike most server upgrades, a facilities upgrade typically has a significant lifespan, so the budget should account for this accordingly.

Heath says it's also important to employ the proper planning resources. "As early as any other planning, facilities planning must be employed," he says. "Accurate estimation of both energy and air consumption for the new equipment, floor loading, data connections, etc., need to be considered and, in many cases, modeled to ensure that the environment will be capable of providing support."

One trouble area in particular, Mamane cautions, can be unrecognized risk. He says this is yet another reason for methodical project planning; often the path from now to then isn't clear, and decisions must be made without all the data. "Discerning the decisions which employ the most risk and developing risk management plans will cause the inevitable problems to be discovered early and dealt with appropriately," he says. Employing enough good

Best Tip: Establish A Chain Of Command

Once plans for a data monitoring system are underway, be sure to develop a chain of command in case of an emergency after hours. It's vital to ensure that the proper data center and facilities personnel can be reached away from work and can respond to an emergency on short notice.

For example, let's say you find water in your data center. You need to know who should be notified and how, who is responsible for taking steps to solve the problem and prevent equipment from being damaged, and how to put the proper processes in place to keep it from happening again.

"There is more to data center monitoring than purchasing, installing, and configuring hardware," says Gina Dickson, product manager for Black Box Network Services (www.blackbox.com). "You must plan for the events that may occur and the processes and procedures that will resolve them."

assess your internal resources and mock up a timeline so that you know whether to go internal with your system or explore outsourced support, says New York-based IT practice analyst Tom Weber.

"As with most projects, it's critical to set aside adequate time and resources to define what's required among your stakeholders prior to evaluating, selecting, and designing a system," Weber says. □

Best Tip: Set The Correct Expectations

As with any project, gaining support from sponsors with an agreed-upon flexibility matrix of scope, schedule, and resources prior to upgrading your servers will certainly make life more bearable. According to Alan Mamane, CEO of Server Racks Online (www.server-rack-online.com), no large project ever goes exactly as it was envisioned. "Good projects are the ones with managers who did a good job of planning, tracking, communicating, and reacting to the inevitable issues which arise," he says.

project managers will go a long way toward making the project successful.

Another common project mistake includes paying too much attention to an individual item price while failing to see the whole TCO picture. Tsao adds that having to chase the latest fancy technologies can also have a detrimental effect on your limited resources, which may not have direct benefits for the specific application or won't solve real IT operation problems. He notes, "Lastly, buying into certain proprietary products can result in vendor lock-in and you will lose flexibility on future upgrades."

At any rate, Tsao says data center server upgrades are important because new technologies bring tremendous benefits, such as higher power efficiency and better performance. □

Microsoft To Acquire Canesta

Canesta, inventor of single-chip 3D-sensing technology and provider of 3D imaging chips, has agreed to a deal that will see Microsoft purchase its products, technology, intellectual property, customer contracts, and other resources. Canesta CEO Jim Sparke says that with Microsoft's range of consumer-to-enterprise products and market presence, "we are confident that our technology will see wide adoption across many applications that embody the full potential of the technology." The companies have yet to release details of the agreement other than stating it is expected to finalize by year's end.

Apple Files Patent Infringement Suit Against Motorola

The grudge match between smartphone giants Apple and Motorola has escalated once again, as iPhone maker Apple has filed suit against Motorola claiming patent infringement just weeks after Motorola filed a similar suit against Apple. In the latest suit, Apple alleges that several of Motorola's smartphones—including its popular Droid, Droid 2, and Droid X devices—are violating six patents held by Apple, three of which relate to touchscreens. Earlier, Motorola filed suit against Apple, claiming patent infringement from Apple's iPhone, iPad, and iPod touch products. Apple is seeking a trial by jury for its suit.



Woman Sues Apple Over iOS 4.0 Update

A California woman has filed suit against Apple because the iOS 4.0 update didn't include the features she expected it to. Labeling her iPhone the "iBrick," Bianca Wofford submitted the suit on Oct. 21, requesting class-action status. According to details in the lawsuit, Wofford claims that the iOS 4.0 is a downgrade from early iPhone updates. She believes that Apple was employing a consumer Catch-22 method of marketing where customers who upgraded to the new OS would simply quit using their iPhone 3G or 3GS and instead upgrade to an iPhone 4.

Microsoft Reports Record Results

Microsoft released the financial results for its first fiscal quarter of 2011, which include record-high revenues of \$16.2 billion—an increase of 25% year over year. The company's operating income was \$7.1 billion and net income was \$5.4 billion, up 59% and 51% respectively, and earnings per share climbed 55% to 62 cents per share. The company attributes much of the strong quarter to recently released versions of its popular software programs. "This was an exceptional quarter, combining solid enterprise growth and continued strong consumer demand for Office 2010, Windows 7, and Xbox 360 consoles and games," said Microsoft's CFO Peter Klein in a statement. Office 2010 in particular saw its revenue grow more than 15% in its first full quarter of availability.

Number Of Targeted Attacks On The Rise

Spam and phishing scams through email are growing in number, according to a recent report from Symantec MessageLabs Intelligence. Between August and October, the average number of attacks per day rose from 60 to 77. Perhaps the most interesting find is that the retail industry saw the largest growth in number of attacks and became the most targeted group. Symantec reports that many of the spam and phishing emails appear to be real and sent from within the company but are actually attacks designed to steal information from people with the highest amount of access to sensitive information.

Detect & Eliminate Intermittent Network Problems

What To Look At When Troubleshooting

by Holly Dolezalek

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IT'S A LOT EASIER to understand chaos theory when you're in charge of a network. Small changes and events can band together to create huge impacts, which are all the more difficult to understand when they're unpredictable and intermittent.

But even seemingly inexplicable problems, which only come up once a month or only affect two out of a business's four floors in a building, have comprehensible causes that can be teased out with enough patience. The following are some common sources of problems in networks.

Hardware

Network problems due to hardware are often more straightforward than those caused by other factors. "Usually, either it's working or it isn't," says Eric Hobbs, president of Technology Associates (www.technologyassociates.net). And it's not hard to find out either way. A quick check of log data for a device that might be involved in a

TOP TIPS

- Automation.** Matt Gowarty, senior product marketing manager at Infoblox (www.infoblox.com), suggests that automating the menial, reparative tasks of networking might help reserve time and resources for documenting change and resolving performance and connectivity problems. Scheduling batch files, deleting or copying other files, and checking for errors can be automated. "A lot of basic block and tackling goes by the boards because IT staff spends so much time troubleshooting and fixing problems," he says.

- Virus protection.** Viruses don't cause near as many network problems as internal changes and configurations. But if they do get a foothold, it's often in applications rather than the network, and that makes for more troubleshooting and possibly a need for help from the vendor if it's a third-party application. For that reason, Mark Gilmore, president and co-founder of Wired Integrations (www.wiredint.com), recommends more than just antivirus software on desktops. "You need a multi-level threat management process, you need to monitor your email, and have Web threat protection and three or four layers of antivirus protection to protect your network," he says. "Just having one on desktops does not cut it."

- Virtualization.** Keep in mind that if you're thinking about virtualizing applications or servers for the first time, you may need to add extra resources to cope with the changes that will bring to your network. "Virtualization is one of the biggest challenges from a network point of view, because things that were once static are now dynamic," Gilmore says. "Routing protocols, ACL settings, so many things are moving around that keeping up gets exponentially more difficult."

network problem will show whether that device is sending out error messages or is offline, but problems like that are usually steady-state, not on-and-off.

"We've occasionally seen issues where ports or switches go bad, particularly ports," says Mark Gilmore, president and co-founder of Wired Integrations (www.wiredint.com) "You see something strange going on, where certain people's connectivity is on and off, and then you realize that the port is bad."

To rule out the simplest things first, it makes sense to start with hardware, Gilmore explains. "We usually start at the endpoint device that's reporting the issue and verify that its hardware, network card, and patch cable are good," he says. "Then we trace to where it terminates, like a switch in a closet, then we track it piece by piece from the end point to the data center."

Software

A more common—and difficult—source of network problems is software. In fact, the source of connectivity or performance problems in the network is often not in the network at all. For example, many of the applications intended to protect the network—antivirus programs, spam filters, content filters—can cause momentary or temporary network problems because their exclusions are wrong or their auto-updates go badly.

Updates and patches are frequent culprits in network slowdowns or crashes. Gilmore explains that one of his company's clients once had a network problem where all the PCs in the building's top two floors suddenly couldn't get network addresses. The problem was intermittent and couldn't be traced to any one cause, despite a network sniff and help from Cisco in troubleshooting. Finally, a third-level engineer discovered that the Windows servers for those two floors didn't have up-to-date patches, and they were rejecting the requests from the desktops to give them a network address.

Unfortunately, patches can cause problems, not just when they're not applied, but when they are. "We always tell our clients: When you're putting patches in, make sure you use a test environment first, because if you just throw them on, it could cripple your network and you won't know why," Gilmore says.

Change

When network problems start, many administrators naturally think about viruses, denial-of-service attacks, and other external causes. But Matt Gowarty, senior product marketing manager at Infoblox (www.infoblox.com), says that it's actually internal actions, often with the best of intentions, that create the most havoc in networks. That's why the first question to ask about that havoc is: What's changed?

"Let's say you've got configurations set for three devices and a normal service path between them," says Gowarty. "But now the router goes bad and somebody replaces it. Now another device might still be trying to connect that way, but that router isn't there anymore and nobody has thought to update the service path." That's a lot easier

to diagnose if there's a change control and documentation process in place.

Hobbs says proper documentation and change control help administrators, particularly when it's as automated as possible and isn't left up to individual users. "It needs to be tied to specific devices, workstations, routers, switches, so that you don't have to filter through tickets to see all the problems, updates, and changes in a given time period for that device," he says. "If you can see that information succinctly, you can usually narrow down to the causal issue relatively easily. A lot of the diagnostic tools out there for networks are just a crutch to proper documentation and planning; they're trying to give you the secret answer to a problem when the answer is usually, 'Oh, we forgot we did this!'"

The Human Factor

No discussion of IT troubleshooting is complete without the human factor. Hobbs explains that admins sometimes don't plan network changes well, and their changes create a loop in the network that causes slowdowns or stalls.

Key Points

- When troubleshooting a network problem, eliminate the simple possibilities first, like hardware problems.
- Don't assume that a network problem is coming from the network; check applications that might slow down the network if their configurations or settings were wrong.
- Keep track of everything that gets changed on the network, because the most common source of network problems is change.

In other instances, attempts to fix a small problem go awry and cause a much bigger problem. "We once had a client whose network had slowed down, and there was a hodgepodge of TCP/IP addresses in odd places," Hobbs says. "It turned out that an admin had been trying earlier to resolve an IP issue, and he did it by assigning a bunch of workstations to static IP addresses."

Users make mistakes, too, of course, and one frequent mistake is unauthorized installations. Often users download an application or a plug-in that isn't sanctioned, or they try to access a function in an application that isn't installed, and the installer hangs up halfway.

But user experience is often key to understanding fleeting network problems. "You want to encourage users to report problems right away and encourage help desk staff to look for root causes, because if you have more than one user having the same problem, it may be an indicator of a larger issue." □

nMETRICS APPLICATION MONITOR 9151

NEW PRODUCT

by Kris Glaser Brambila

Better Monitoring & Management Of High-Traffic Networks

nMETRICS PROVIDES NETWORK performance management solutions that are feature-rich and easy to use. The company's line of Application Monitors is designed to simplify the management of an organization's network and application performance, increasing visibility to better troubleshoot issues and tackle capacity-planning projects.

The nMetrics Application Monitor 9151 is best suited for larger organizations with a hard-working, high-traffic network. It is designed for Gigabit-capable networks with up to 500 subnets and features hardware-based monitoring that can track all network traffic, including source and destination addresses; application, conversation, and host types; trends and traffic growth; latency measurements; and device availability. This information is logged into a database where users can generate customized reports to help them make informed decisions about their company's network. "It is affordable, easy to use and deploy, and allows operators to quickly identify issues," says Steve Urquhart, co-founder of nMetrics. The AM9151 can provide reports for Citrix, Oracle, SAP, Microsoft Exchange, VoIP, and more.

The AM9151 is installed in the core of the network and can monitor both WAN



Application Monitor 9151

A hardware-based application monitoring solution designed to help large enterprises better manage network performance.

and LAN segments, giving users a comprehensive view of their network's performance. It is compatible with any existing network infrastructure, which not only makes installation simple, but also saves valuable time and money. The Application Monitor also comes standard with 4x Copper Gigabit and 2x Fibre Gigabit Ethernet ports and can take feeds from multiple SPAN or mirror ports on the network. nMetrics Application Monitors are suitable for government, telco, MSP, enterprise, and SME firms. In addition to the AM9151, nMetrics offers the AM100 for small branch offices and the AM6001 for midsized networks.

Older Workers Lead In Social Networking Usage, Study Shows

Workers in the Generation X category (ages 29 to 49) use social networking tools for business purposes more often than Generation Y workers (ages 15 to 28), says a study conducted by Forrester Research and commissioned by Citrix Online.

The study, based on the responses of 797 Gen X-, Gen Y-, and baby boomer-aged information workers from the United States, the UK, Germany, and Australia, aims to explore the ways in which worldwide workers communicate as social networking continues to expand.

"Sometimes research confirms our assumptions, and other times it blows them out of the water. This is one of the latter occasions," says Bernardo de Albergaria, vice president and general manager of global marketing and e-commerce at Citrix Online. "We've heard so much in recent years about the impact of Gen Y on the workplace and work styles that it's tempting to believe they have the monopoly on all things social. Turns out that's not necessarily true, and it's actually the oldest generation that uses social networking most actively for business."

According to the study's results, only 40% of Gen Y workers use social media for business on a daily basis, compared to 50% of baby boomers (ages 55 and older). In fact, older boomers have increased their use of social media 79% in the past year. "I don't think anyone would have predicted that," de Albergaria says.



Social Networking In The Future

The reasoning behind these surprising results, according to de Albergaria, originates from the idea that Gen Y workers simply don't find social networking to be a necessary means of communication with business colleagues. "It may be that they've been on social networks since they were in high school and the transition to work life doesn't necessarily invite integrating the two worlds," de Albergaria says. "I also think social collaboration in business is still at an embryonic phase, without easy-to-use tools widely available to companies of all sizes." In fact, the study reported that only 12% of enterprises use social networking tools.

"The picture painted from the research data is that SMBs have not yet invested in collaboration tools," de Albergaria says. "In fact, they are using them significantly less than enterprises, 35% vs. 58%." The report says, however, that organizations are looking toward increased social networking use—73% of the businesses currently using social networking tools emphasized that usage is up from last year.

by Kris Glaser Brambila

SPECIAL INTEREST TO HEALTH, EDUCATION, GOVERNMENT DATA CENTERS

STORAGE

Storage Shopping 101

Tips For Evaluating Storage Solutions

by Christian Perry

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STORAGE ENVIRONMENTS EXHIBIT a no-twin-like nature. Huge variances in company size, IT environments, and business requirements in turn make the task of selecting storage products a highly tricky affair that ultimately demands a precise investigational strategy when choosing a storage platform.

Know Your Needs

The challenges inherent in shopping for storage revolve around several elements, according to Jeff Ready, CEO of Scale Computing (www.scalecomputing.com). Perhaps the most important element is cost, because storage systems not only can be pricey up front, but they can also come with multiple hidden, or soft, costs. The obvious price-per-terabyte metric is a start, but Ready recommends running through several

Key Points

- Cost remains the most important factor when considering a storage solution, but it's also important to consider scalability and flexibility for current and future requirements.
- When storage shopping, remember to consider your data repository type, storage connectivity options, I/O requirements, and space requirements.
- Virtualization and rich media are driving today's storage needs, but even those factors often differ between organizations in the educational, medical, government, and other realms.

president of storage architecture and strategy at Corus360 (www.corus360.com). This includes determining your appropriate data

"Not only will your capacity needs grow, but it's inevitable that the way in which storage is used, the best practices for implementing that storage, and the applications which rely upon the storage will all change."

- Scale Computing's Jeff Ready

scenarios and determining how a potential storage solution will impact those scenarios.

"What happens when you outgrow the storage? Does downtime need to be scheduled? How expandable is the system? Will expansion trigger additional licensing fees? Will I be locked into a particular hardware profile? What are my most common tasks, and how long will it take to perform them on my system? Adding a storage system can solve one problem, but it may create others. Thinking through these things will help [companies] understand the true costs of a storage system, which are often people costs due to administration and maintenance," Ready says.

Although there are several factors related to a storage purchase, there are universally two needs—scalability and flexibility—among storage buyers, Ready says. Whereas companies used to forecast their storage needs three to five years from the present, the steep growth of storage requirements has spawned major challenges that make such assessments far more difficult. As such, Ready advises thinking about the longer-term impact of adopting a particular architecture when it comes to growth, as well as flexibility.

"Not only will your capacity needs grow, but it's inevitable that the way in which storage is used, the best practices for implementing that storage, and the applications which rely upon the storage will all change," he explains. "An IT professional should think about their architecture in terms of how easily they can control the storage system in order to have the storage adapt to their needs now and in the future, rather than be forced into a situation where ideal practices must be changed in order to conform to the requirement of the storage."

On a more technical level, it's also important to gain a factual understanding of your applications needs, says Stephen Jones, vice

repository type (such as active storage, backup, archive, disaster recovery, etc.), appropriate storage connectivity options (FC, iSCSI, NFS, CIFS, etc.), the space needed today and anticipated for the future, and the I/O requirements (both the amount and read/write ratio).

Different Storage Strokes

Although many storage platforms can accommodate requirements in varied environments, it remains useful to understand the different needs across different sectors. According to Ready, virtualization and rich media are the two biggest drivers in the storage world today, but those drivers are affecting organizations in different ways. For example, advances in medical imaging in the healthcare market are increasing the use of high-definition video, which consumes a tremendous amount of storage space, and the steady climb of electronic medical records is also contributing to an increased need for storage capacity.

"Likewise, we've seen adoption of technologies like virtual desktops in education, which can simplify system administration but puts a burden on storage systems by moving from a distributed to a centralized storage model. In government, financial services, and legal, there are an increasing number of regulatory requirements which require the archival of documents, email, and other such files for great periods of time," Ready says.

Unique needs for enterprises and other organizations in different sectors can be obvious to those working in specific areas, but it's also critical to think about storage in terms of how future changes will affect storage needs. For example, Ready notes that advances in school media technologies will inevitably require additional storage, but those changes tend to be gradual, and the process of integrating them into existing

storage architectures can be taken in steps. On the other hand, he adds, the introduction of a regulatory requirement or the purchase of a new piece of medical imaging hardware might have a huge, immediate impact on storage requirements.

Despite the varying ways in which storage is used in different industries, Jones stresses that the same applications are often run in similar and disparate enterprises with different storage-specific needs and speeds. Therefore, he recommends conducting individual, manufacturer-independent analysis efforts with the goal of agnostically understanding your organization's specific storage needs.

"These include, but are not limited to, the amount of data to be stored, the lifecycle of the data, how quickly it needs to be accessed, the cost of such solutions, and the support of them over their intended lifecycle

plus one or more years. Regulations and legalities surrounding the storage, retention, and lifecycle access to data should also be included in the analysis process that an enterprise must face when considering storage options," Jones says. □

Finding Answers

Choosing the right storage platform for your environment is nearly impossible if you don't ask the right questions. Pete Kimbrell, CEO of All Document Solutions (www.alldocument-solutions.com), recommends finding answers to the following key questions.

- What are the budget constraints?
- Are there any legal or regulatory compliance requirements that must be met, such as encryption for data at rest or write-once media?
- What type of data or information (mission-critical vs. archival) will be stored, and how often is the read/write activity taking place?
- Do the organization's current security policies allow for the use of a third-party data center? If so, what are the requirements for the co-mingling of data?
- Will the new storage technology need to be integrated into the current business continuation and disaster recovery plans, or will a new methodology be designed around the new technology?
- Are there bandwidth or data transfer limitations that must be considered?
- Is there a need to integrate with legacy technologies?
- Does the organization have the internal IT resources to deploy and maintain the new system?

CASE STUDY

The Path To Efficient Backups

BakBone's NetVault: SmartDisk Helps Map Company Keep Its Backups Duplicate-Free

by Robyn Weisman

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WHEN YOU'RE a mapping company that stores more than 40TB worth of maps of all types, from all over the world, you do not want duplicate data sets in your backups. "We've got very large files, upwards of 2GB for a single file, that are generally TIFF files, and there are no standard compressions that work well in a lossless format," says Noah Dionne, system administrator at DeLorme.

When DeLorme (www.delorme.com) was founded in 1976, it started out as a publishing house, making paper atlases used by hunters and fishermen. It moved into the digital map realm as the technology matured. Although it still has a paper atlas division, the majority of DeLorme's output consists of digital mapping data for its three desktop computer mapping programs and handheld GPS systems.

According to Dionne, DeLorme had been looking for a replacement for its tape backup for a good two to three years. The company was very familiar with San Diego, Calif.-based data protection solutions provider BakBone Software (www.bakbone.com) because it had already been using BakBone's NetVault: Backup product for almost eight years. BakBone's original solution for DeLorme's issue, a virtual tape library solution, was too expensive for DeLorme to license. So when BakBone came out with SmartDisk, Dionne was skeptical. The sales rep assured Dionne that SmartDisk was cost-effective, and so Dionne's team decided to give it a try.

DeLorme installed version 1.0 of SmartDisk at the beginning of this year and has had it in production ever since. For his part, Dionne has been pleased with the results. "The biggest thing with [SmartDisk] is the amount of tape I've been able to reduce. The [amount of tape] I ended up not having to purchase in the first quarter of this year paid for [SmartDisk's] licensing for this entire year," Dionne says. "It was very cost-effective, and rather than having to pull a tape, spool it onto a drive, and then restore it, we've got much faster access to restoring things. So it's been a win-win for us."

BakBone NetVault: SmartDisk

A disk-based backup and deduplication solution that is hardware-agnostic, works on most file systems, provides integrated data protection, and offers up to a 12 to 1 deduplication ratio.

"[SmartDisk] was very cost-effective, and rather than having to pull a tape, spool it onto a drive, and then restore it, we've got much faster access to restoring things. So it's been a win-win for us," says Noah Dionne, system administrator at DeLorme.

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Does The Job On Any Hardware

Despite its long-standing relationship with BakBone, DeLorme did check out competing products, including hardware-based solutions. "The units were all self-contained hardware units, [on which] we would write

Dionne didn't expect many surprises with SmartDisk because DeLorme had done such extensive research on it before installing it. But the compression ratio, given all the issues with the type and amount of data DeLorme has, really surprised him. "Everybody else we had talked



data, that would take care of deduplication and everything on their own, but they were looking expensive," Dionne says.

Because SmartDisk is a software-based product that works on most file and operating systems, DeLorme didn't have to worry about buying specific appliances or drives to run it. Instead, Dionne's IT team was able to purchase a RAID cabinet and some inexpensive SATA drives to test it out. "With SmartDisk on top of [this RAID system], we could get the deduplication for a much lower cost of operation than those hardware products could offer," Dionne says.

Before deploying SmartDisk, DeLorme performed basic tests on its SAN to make sure that it would properly integrate with the company's environment and run as anticipated. "We had to make sure [SmartDisk] was going to write at least as fast as our tape drives and properly deduplicate the data that we had. We also wanted to make sure we would get at least some benefit to the compression, even with our type of imagery data," Dionne says.

Fresh-Squeezed Data

DeLorme found that SmartDisk wrote its data at least eight times faster than its tape drives could. Moreover, the company was seeing a compression ratio of six to one. This ratio has remained constant since the deployment. Unlike traditional fixed-block technology that can mask changes, SmartDisk's byte-level variable-block technology can analyze smaller amounts of data and avoid such problems as mistaking duplicate pieces of data as unique ones. And SmartDisk's ability to add extra file system paths to its storage pools reduces costs by deferring storage expenditures into new budget periods while ensuring that storage is not being wasted.

Dionne primarily is running the company's daily incremental backups to SmartDisk. "I've got about 1.8TB in there right now, and it's only taking up about 300GB of space, so there is tons of room to grow," he says. "With tapes, we were doing about a two-week rotation so that anything older than two weeks was getting purged out. With [SmartDisk], I've got almost five weeks in here currently, and I'm still only at 300GB."

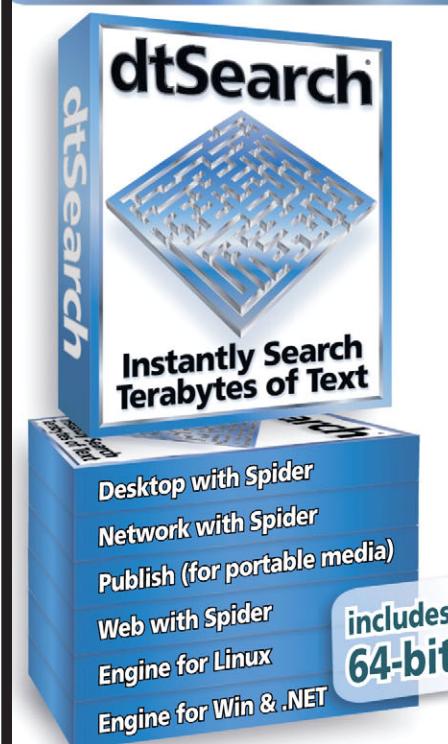
Off & Running

BakBone's support engineers helped DeLorme design the company's current backup infrastructure, recommending a 64-bit Windows Server 2008 R2 server machine running the SmartDisk software. DeLorme has attached that to a SATA RAID array. "That's the physical hardware side of things. Basically that is its own environment, and our NetVault: Backup writes just to that box," Dionne explains. "The setup was run in one installation app. It took about 10 minutes before we were off and running."

And SmartDisk can easily be administered by one person, which is quite an advantage when you only have five people on your IT staff. "You tell it how much space it has available to it—in our case, about 40TB—and once it's set up with that storage, you point to it as you would a regular tape drive or tape library. The NetVault software really takes care of the rest," Dionne says. Instead of writing to the company's old tape drives, Dionne has pointed his backup jobs to the RAID array running NetVault: Backup. From there, SmartDisk combs through the data, performs its compression and deduplication functions, and then verifies its work.

Dionne recommends NetVault: SmartDisk as a straightforward and easy-to-use solution for data deduplication needs. "To be honest, it's a basic product that does what it does. If you're running NetVault: Backup already, SmartDisk slots right in. They're really tightly integrated," Dionne says. "[BakBone] has done their job well, and their support has been helpful any time I have had questions or concerns about the product." □

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Consumers Feel Less At Risk When Browsing On PCs

A new survey by the National Cyber Security Alliance and Symantec's Norton has determined that most of us (87%) feel less at risk when browsing the Internet on our PCs compared to our mobile phones. About 58% of those polled say they have a full security suite and are protected, but when their systems were scanned, only 37% were fully protected with antivirus, firewall, antispyware, spam filter, antiphishing, and identity protection software. The report also shows that 43% of those surveyed say they have logged on to an unsecured wireless network; when broken down by age group, 66% of respondents between the ages of 18 and 29 had taken the same risk. About two-thirds of respondents say they occasionally read privacy policies before downloading mobile apps. Just 22% back up personal data stored on their devices.

Group Works To Standardize SSDs

SSDs could be the next big thing in computing performance, but thus far they're a tech support headache. The drives vary not only by manufacturer but by controller, and methods/requirements for firmware updates and "garbage collection" are all over the map. Dell, EMC, Fujitsu, IBM, Intel, and others have formed the SSD Form Factor Working Group to bring some order to the chaos, at least regarding connectors and form factors. Not all of the heavy-hitters in the industry are on board yet, but big names such as SandForce, STEC, Micron, Marvell, and Fusion-io are contributing members.



Motorola Quarterly Results Top Expectations

Thanks to better-than-expected sales of Android-powered smartphones, Motorola reports that its mobile device unit posted a third quarter profit for the first time since 2006. The unit generated \$3 million in operating profit during the quarter, compared to a loss of \$183 million during the same period last year. During the quarter, the company shipped some 9 million phones, of which 3.8 million were smartphones; analysts had expected the company to ship only about 3.5 million smartphones. Pressure on Motorola is expected to increase this year, as Microsoft re-enters the smartphone market and as Verizon adds the iPhone to its offerings early next year.

Hybrid Drives Taking Off

By 2016, there could be twice as many hybrid drives as people in the United States. A new report from research firm Objective Analysis says that the drives, which are hard drives with relatively small (4GB) amounts of SLC NAND memory added, are poised to double their market each year to 600 million in 2016. The new generation of hybrids doesn't depend upon a particular OS to provide an SSD's responsiveness with the capacity of a hard drive. It's not the first time hybrid drives have been available, but earlier hybrids, which required Windows Vista, quickly faded into obscurity.

Social Media: E-Discovery Concerns

Make Sure Your SME Is Protected

by Elizabeth Millard

ACCORDING TO A RECENT SURVEY, enterprises are increasingly concerned about e-discovery issues related to social media, creating a strong need for better communication between IT and enterprise legal representatives.

The Economist Intelligence Unit for Deloitte Forensic Center found that roughly two-thirds of respondents surveyed expressed concern about e-discovery challenges posed by online social media forms, and 44% of respondents expect their companies' information technology departments' e-discovery challenges to increase. However, about 61% of those surveyed expect their enterprises to be only somewhat effective or not effective at all in dealing with e-discovery issues three years from now.

Know The Perils

Since the passage of the Federal Rules of Civil Procedure in December 2006, all businesses need to be prepared to discuss

Key Points

- Enterprises should be aware of the many e-discovery issues that come with employees using social media networks such as Twitter, Facebook, and LinkedIn.
- Policies can help with prevention and should include clear articulation of what subjects can be addressed in social media and how such accounts will be monitored.
- Consider technical solutions that provide social media archiving and monitoring.

needs to have clear and firm policies as to the type of information that can be disclosed and the manner in which it can be disclosed, according to Howard Reissner, CEO of Planet Data (www.planetds.com), a firm focused on the creation and development of legal technologies.

He notes that such policies should include who can represent the organization, which subjects can be addressed

"All employee communication must be preserved in a compliant manner and discoverable in the event of litigation."

- Sonian's Greg Arnette

how and where they keep employee communications, notes Greg Arnette, founder and CTO of Sonian (www.sonian.com), a cloud-powered email archiving firm.

"All employee communication must be preserved in a compliant manner and discoverable in the event of litigation," he says. "These regulations often apply to all business correspondence, which now includes social network communication such as tweets, Facebook status updates, LinkedIn postings, and director or private messages across these platforms."

In the event of litigation, he adds, businesses that don't have access to this communication may face serious consequences, such as steep fines, costly lawsuits, and even jail time for those knowingly concealing information.

"Unfortunately, retrieving information from such a fluid medium is often like pulling teeth," says Adam Sand, general counsel at ZL Technologies (www.zlti.com). "Even armed with a subpoena, social media outlets do not find it in their interest to cooperate. Therefore, organizations need to take it upon themselves to manage social media with the same or a greater degree of diligence as they do other forms of electronic communications and content."

Focus On Prevention

If a company is utilizing social media for corporate purposes such as marketing or client communication, then the enterprise

(and particularly what can't be mentioned), and whether the legal department should be notified prior to specific types of info dissemination. Additionally, the company should clearly articulate whether individuals can maintain personal accounts, and if so, how they'll be monitored to prevent the unauthorized disclosure of information that may expose the organization to legal liability. For example, if the company is a financial institution, employees need to know that a simple comment such as "working on a killer merger" on a Facebook feed can be a potential SEC violation, notes Benish Shah, attorney at Sardar Law Firm.

Reissner adds, "Each employee should be educated as to the improper use of personal platforms to divulge confidential and/or harmful information about the organization or other entities that the individuals gained through their employment."

It's important to have only authorized personnel—those who've been trained in the areas of records management, compliance, and corporate law—represent the organization on social networks, he adds. Policies on nonapproved uses of social networks need to be clearly drafted, given to all employees, and acknowledged in writing.

Companies also have to proactively and systematically update record management protocols to incorporate emerging technologies such as text and instant messaging, states Regina Jytyla, managing

staff attorney at legal technologies and data recovery firm Kroll Ontrack (www.krollontrack.com). This will help ensure that all content is being captured.

But even with these controls, an enterprise may want to brace for challenges ahead. "Responding to requests for information contained on social networking sites presents obvious problems, as the content is not stored on user equipment or company servers, making the identification and collection of this data much more challenging," says Jytyla.

Technology Tools

The most obvious technical solution is to prohibit use of social networks in the organizational infrastructure, notes Planet Data's Reissner, but this can be very challenging as employees increasingly blur the line between work and home. After all, Facebook is awash in status updates about working on tough projects or dealing with cranky managers.

But it's possible to use technology to minimize risk, with software platforms that monitor the types of text used in social media and email, and there are different companies that can provide social media archiving and monitoring.

At a minimum, enterprises should have the capability to store social media communications that pertain to business in the event of an e-discovery query, Sonian's Arnette notes. "It's important to look at social media archiving and storage in the context of an overall enterprise information management strategy," he says. "Social media monitoring should be the first step; all other communication should be secure, and then companies can move forward with monitoring and archiving social media." P

Top Questions

According to Sheheryar Sardar and Benish Shah, attorneys at Sardar Law Firm, which handles many social media legal issues, here are some questions to kick off the creation of a company policy:

- How does the company use social media?
- Do company employees using social media on a personal level create risk to the company?
- Do company managers create a risk through social media usage?
- How can the company create policies and develop strategies to avoid potential risks?
- Is a company representative reading through blogs that mention or discuss the company?
- Is there a way to influence the online conversation on various social media platforms so that the company is participating in social media instead of avoiding it?

Enhance The Security Of Cloud-Based Virtual Servers

Hosting Servers In The Cloud Requires Extra Vigilance & Vendor Transparency

by Kurt Marko

• • •

VIRTUALIZATION IS A TECHNOLOGY tailor-made for the confluence of client-server applications and multicore, multigigabit CPUs. It's an ideal solution for slicing and dicing the abundance of processing power and memory available in today's servers among many applications, while providing almost perfect isolation between them. In essence, hypervisors and VMs (virtual machines) have become the mainframes of the Web application era. Just as mainframes facilitated the migration of private systems owned and operated by internal IT to public timesharing services available to anyone, so, too, have VMs crossed the private-public chasm, with cloud-based IaaS (infrastructure-as-a-service) providers renting machine time by the hour.

Bare metal VMMs (virtual machine monitors) are highly refined and tuned systems designed to completely isolate multiple guest operating systems. In the controlled confines of a corporate data center, where the identity and accountability of each VM customer is known, VM isolation technology is more than adequate; however, as the environment shifts to the public cloud, it may be lacking. The full extent of VM security risks from other cloud users is still being explored by security researchers, but security risks extend beyond any chinks in the VMM armor

Key Points

- Many elements of security on cloud-hosted virtual machines are beyond the user's control. Customers must demand transparency into the IaaS provider's security policies, compliance, and ongoing incident response via online dashboards or standard APIs.
- Security practices for hosted VMs are like those for in-house servers, but bigger. Users must be vigilant that standard host/OS-based security controls are followed and monitored.
- Security breaches from one VM to another, or across the hypervisor, are still theoretical, but probably inevitable, so users should protect sensitive data before sending it to the cloud and build resiliency into cloud-hosted applications.

itself, because in the cloud, networks and storage are also shared. While no cross-VM penetration has yet been documented in the wild, experts warn that it's not impossible and likely only a matter of time before a wily hacker jailbreaks a hypervisor. Yet in the cloud, with control over only the OS, end users are just a part of the security equation, and they must trust service providers to uphold their end of the bargain.

Potential Threats

One way to understand the public cloud threat landscape is by partitioning the operating environment into three abstraction layers, a model originated by Christofer Hoff, director of cloud and virtualization

solutions for Cisco's Security Technology Business Unit (www.cisco.com) and a founding member and technical advisor of the Cloud Security Alliance. At the lowest level comes infrastructure security for the underlying networks, server hardware, and storage arrays at the heart of cloud hosting.

Next is security for the IaaS service layer, including the VMMs, deployment, orchestration, and billing software. The final security layer covers the operating

Hoff, with the caveat that public clouds require heightened vigilance.

Perhaps most important is having detailed and robust application and (virtual) OS monitoring. For cloud-hosted applications, Hoff advises building in telemetry so that even minute performance anomalies or disruptions can be proactively detected.

Because security implementation is mostly beyond the cloud buyer's control, Hoff is a leading advocate of increased transparency

"The provider could have an amazingly secure environment, but the end user can screw up their end."

- Cisco's Christofer Hoff

systems and applications running on IaaS guest VMs. Hoff points out that the cloud customer controls only this last piece and must trust that its service provider is adequately securing everything else.

"What's amazing," says Hoff, "is that the provider could have an amazingly secure environment, but the end user can screw up their end." Conversely, the cloud customer could lock its apps and OSes down with military-grade security but still be vulnerable if the provider leaves gaping holes in the infrastructure.

Protecting a VM environment offers several new challenges. Hoff identifies seven attack vectors. At the VM layer, these are guest-to-guest, guest-to-host (server), and guest-to-self attacks, while from outside the cloud there are external-to-host and external-to-guest exploits. Finally, insider attacks target the server or hypervisor itself, exploiting hardware-based vulnerabilities requiring physical server access.

According to Hoff, attacks on public VMs can take myriad forms, including hypervisor-targeted malware, traditional rootkits, or so-called hyperjacking (a rogue hypervisor that takes complete control of a server). Server peripherals can also be vulnerable to VM malware, with attacks targeting NICs or the hardware BIOS holes using malware-infected USB sticks mirroring the technique used by the Stuxnet worm.

Although attacks on VM guest OSes are indistinguishable from those on stand-alone systems, compromises of the underlying hypervisor and server hardware are still largely theoretical. Hoff cautions, however, that despite claims that every VM threat surface has been explored, there will always be people working to poke holes in the system, and if vulnerabilities exist, they'll be exploited.

Technology & Service Protections

In most respects, securing a virtual system in an IaaS cloud is no different than protecting a stand-alone server in the corporate data center—the same best practices apply.

"Everything you would normally do to a server, you need to do to the VM," says

between providers and customers. When trusting core business applications to a third party, he says, it's critical for customers to understand and monitor their security and data protection policies, standards compliance, and incident response processes. In fact, streamlining and automating the verification of cloud providers' security claims is the primary goal of the CloudAudit standards program.

Software vendors are also augmenting VM security. Although these improvements reduce the probability of hackers jailbreaking a hypervisor to attack other VMs on the same server, IaaS users should still take additional precautions.

L. Taylor Banks, founder and chief consultant at KnowThreat (www.knowthreat.net), recommends locally encrypting all data before storing it in the cloud while keeping key management local. Banks stresses the need to build security into cloud-hosted applications. Hoff agrees, adding that cloud customers must re-architect applications to be "survivable systems" that can withstand a security breach or outage at a particular cloud provider.

Cloud customers should also expect providers to employ network forensics to reverse engineer any attacks, says Pete Schlampp, vice president of marketing and product management at Solera Networks (www.soleranetworks.com), adding that forensics acts "as a security camera on the network," to replay any incident. □

Tips From The Cloud Security Alliance

Guidance developed by the Cloud Security Alliance reiterates the importance of augmenting a cloud provider's security controls with third-party IDS and anti-malware scanning, while also validating the security "pedigree" of VM images. Because intra-server VM traffic passes over a virtual switch and is thus invisible to external network security controls, the alliance advises users to segregate cloud VMs into "security zones" based on application type and data sensitivity.

Intel Announces New Chip Factory In Vietnam

Ho Chi Minh City, Vietnam, is the home of a new chip testing and assembly facility built by Intel. Built at a cost of about \$1 billion, the 46,000-square-meter facility is the biggest of its kind in the world for Intel. At the complex, chips

will be tested for defects and then placed in protective packaging. The factory

will have a workforce in the thousands. Intel also recently announced it will be

opening a \$2.5 billion chip manufacturing plant in China. The chipmaker says a skilled workforce, along with government

backing, spurred the opening of these two facilities.

Verizon Settles FCC Probe For \$25 Million

Verizon Wireless agreed to pay the Federal Communications Commission \$25 million to settle an investigation into improper data fees it charged millions of customers during the past several years. The settlement is the largest in the FCC's history. Verizon will also pay more than \$52 million in refunds to about 15 million customers it overcharged. The FCC investigation began in January after customer complaints of unexplained data charges. Verizon says a software problem is partly responsible for the unwanted fees, and customers using some games or applications could also have initiated downloads accidentally or without knowing. Verizon will reimburse affected customers with credits on their upcoming bills.

Wireless Spectrum Could Face Shortage

A recent report from the U.S. Federal Communications Commission says that mobile data traffic will be 35 times greater in 2014 than it was in 2009, which could lead to a significant spectrum shortage if nothing is done to add more bandwidth. The FCC's National Broadband Plan calls for an additional 500MHz of new spectrum to be made available over the next 10 years, including 300MHz for mobile flexible use within five years. The report suggests that the 300MHz of additional spectrum would be worth about \$100 billion of economic value over the course of five years.

Google To Deploy High-Speed Network

Google will deploy a super-speed broadband network on Stanford University's Residential Subdivision, which is a section of about 850 homes on the university's campus that are typically owned by faculty and staff. The 1Gbps ultrafast broadband project is designed to let Google experiment with new fiber technologies, and the results will allow Google to learn from the small deployment and more effectively put the best technology into use in larger communities. Google says it will begin breaking ground on the project early next year, indicating that the tests will be a key part of the eventual Google Fiber project.

Report Reveals Riskiest Domains

According to McAfee's recent "Mapping The Mal Web" report, the .com domain is the most prone to malware (more than half of the risky sites have a .com extension), likely because of its size. Vietnam's .vn domain and Cameroon's .cm domain were also cited in the report as the riskiest sites to visit in terms of malware. Of the 27 million Web sites analyzed, McAfee found that 6.2% of them pose a security risk, compared to 5.8% last year. McAfee cites inexpensive registration, ease of registration, and lack of regulation as reasons for the malware-laden sites.

Agency Working On Insider Threat Detection Technology

The Defense Advanced Research Projects Agency is working on technology that could be used to detect behavioral changes and anomalies in people with the intent of preventing insider threats and the ensuing problems that can occur.

The major goal for the ADAMS (Anomaly Detection at Multiple Scales) project is to "create, adapt, and apply technology to the problem of anomaly characterization and detection in massive data sets," according to an announcement of the project on the Federal Business Opportunities Web site (www.fedbizopps.gov). Essentially, information will be collected using a variety of different methods and analyzed in order to catch potentially malevolent changes in behavior before or shortly after they occur.



DARPA says that in the early planning stages, the ADAMS project is going to be designed to detect changes in people that start off as "good guys"; DARPA will initially use soldiers or other government workers as subjects for the ADAMS project. The goal is not only to prevent violence in the form of homicides and suicides by soldiers returning from war but also the intentional or unintentional gathering and releasing of sensitive information by the employees that have access to it.

More Easily Identify Threats

DARPA hopes to make the process of locating potential insider threats easier and more intuitive so that national security breaches or attacks can be prevented well beforehand. DARPA envisions counterintelligence operators as the ultimate users for the ADAMS technology as they are responsible for protecting sensitive data in many capacities and could benefit most from the information collected using ADAMS. However, DARPA doesn't rule out the possibility of further applications outside of the military and government domains.

In a separate broad agency announcement on DARPA's official Web site (www.darpa.mil), the agency cited the Fort Hood incident, where an Army psychologist killed 13 people and injured many others, as a situation that may have been averted using technology similar to that proposed for the ADAMS project. DARPA notes that research conducted after the Fort Hood incident revealed emails and Internet postings showing potential warning signs. The agency believes that if a program such as ADAMS were in place at the time, this information could have been found before the fact.

by Josh Compton

FEATURED PRODUCT

Potent Virtual Security

Altor Networks' Stateful Firewall Gives Virtual Machines Physical-Grade Security

by Robyn Weisman

FOUNDED IN 2007, Redwood Shores, Calif.-based virtual security services provider Altor Networks is well on its way to becoming a one-stop shop for virtualization security. The company was founded by Amir Ben-Efraim, former Check Point head of business development, and Moshe Litvin, former Check Point chief architect. Both men have extensive experience developing and bringing to market security solutions for physical networks, says Altor's Vice President of Marketing Johnnie Konstantas.

"The idea was to parlay the tribal knowledge and the experience in the development of solutions like these and apply it to the challenge of bringing the same level of security to virtualized environments, which require the same level of security as a physical network," Konstantas says. "Virtual networks need firewalls, access control, intrusion detection, antivirus, and so forth, but there are specific challenges to reintroducing traditional security technologies within this new model."

In 2008, Altor came out with a stateful firewall designed expressly for virtualized environments. The latest iteration of this

As a result, hypervisor-based security solutions offer better security than the aforementioned alternatives. "You can see everything above you because all your VMs are riding on top of the hypervisor," Konstantas says. "All physical, virtualized, and networking interfaces connect into the hypervisor, so if you're within the virtual operating system, you are seeing what VMs are doing, how they're connected and communicating with one another."

VM movement," she says. "VMI is transformative in its ability to provide insight into your virtual network as it scales and changes."

Security Automation For Dynamic Environments

Virtualized environments are, by their nature, more dynamic than a physical network. "In a physical network, you take a piece of hardware, rack it, connect it with cables, run it through a firewall,

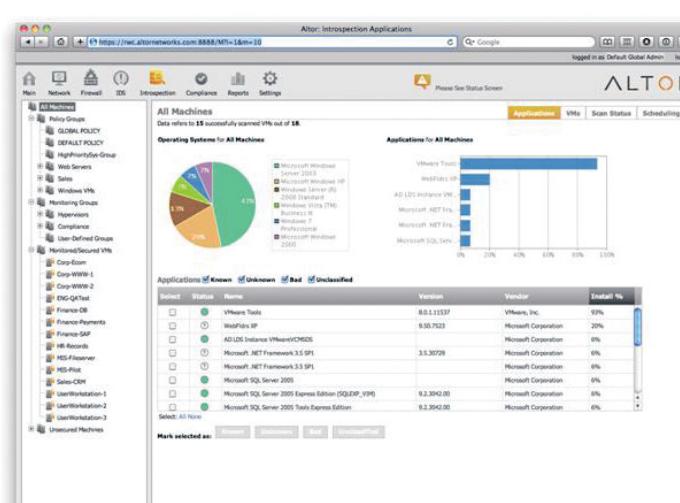
ALTOR

'V' Also Stands For Visibility

Altor 4.0 uses an approach called Virtual Machine Introspection, or VMI for short, that acts as a huge magnifying glass into virtual environments and lets you see everything that is happening. "You can see how a VM is connected to the network, through which ports

it is connected, the hardware it sits on, and if there have been machine code or IP address changes," Konstantas says. "You can also view the applications and services that are installed on it and whether it's been moved or if somebody changes anything on it."

Armed with this plethora of knowledge, Altor 4.0 lets you create policies around a VM's configuration and state so that any unauthorized changes automatically



Altor 4.0 offers a clear view of what's going on in your virtualized environment, making it easier to monitor, manage, and secure multiple virtual machines.

software, Altor 4.0, is a full-blown security suite with multiple layers of protection and visibility that provide SMEs with the ability to virtualize mission-critical applications in a safe and intuitive manner.

The Hypervisor Difference

Altor 4.0 is a VMware-specific solution (support for Citrix XenServer and Microsoft Hyper-V is also in the works) that is VMsafe certified as being interoperable from inside the virtualization operating system, or hypervisor, itself. "It actually hooks into the hypervisor, which means it is delivered as a kernel module," Konstantas explains, adding that the hypervisor approach can perform as much as five times faster than competing solutions, such as virtual appliances that run inside the virtual environment as another VM (virtual machine) or software agents that run above these VMs.

can place that VM in quarantine. "For instance, if a VM called 'Web Server' is not running the latest version of Apache or if somebody accidentally rolled it back to an unwanted version, [Altor 4.0] autodetects the change, quarantines it, and keeps it from accepting connections. It will enforce [that VM's] desired state, condition, or placement per your instructions," Konstantas says.

Currently, Altor 4.0's primary competition is VLAN configurations, Konstantas says. "It's a reasonable assumption that you would look at what you have in-house and see if you can address the security of your virtualized network with investments you've already made. But VLAN solutions lack the ability to granularly enforce policies for each virtual machine, and if you don't know what's inside your VMs, you can't enforce policies or obtain knowledge of new VMs or

test it, and so forth," Konstantas says. "In a virtualized environment, you highlight a VM—say, a Web server—point and click to copy it, and within seconds you have a new VM that is identically configured to the one you just copied. The notion of being able to take provisioning down from hours to seconds affects the way a virtualized environment evolves and can get so out of hand that a human can no longer keep track of it."

As a result, Altor 4.0's primary theme revolves around security automation for the virtualized network, Konstantas says. This focus is readily apparent in the way Altor customer Syracuse University has implemented Altor 4.0. "Syracuse took their entire AU (Academic Units) network to a virtualized model to give each of its 26 schools self-provisioning capabilities so that each one can spin up their own VMs. Altor 4.0 automatically secures this environment and reduces the university's risk," Konstantas says. "Because [the university infrastructure is] hooked into the hypervisor through [Altor 4.0's] virtual management system, Syracuse's IT staff knows when a VM gets cloned, deleted, [or] moved or moves from an untrusted to a trusted area and that Altor 4.0 will automatically secure it."

ALTOR NETWORKS ALTOR 4.0

(888) 734-6555
www.altornetworks.com

- Description:** A hypervisor-based virtual security suite that provides administrators with complete visibility of a virtual environment; comprehensive security enforcement, including stateful firewalls and intrusion detection; and extensive automation and reporting capabilities.

- Interesting Fact:** Altor Networks, which was founded by security and networking pros from Check Point Software, Oracle, and Cisco, was recently named the RSA Conference Innovator of the Year and a Gartner Cool Vendor.

Trust No One

Security Experts Advocate Maxim To Combat Insider Threats

by Bill Hayes

CITING THE SERIOUSNESS of insider threats, cybersecurity experts from the technology and marketing research firm Forrester Research and the U.S. government's NIST (National Institute of Standards and Technology) say organizations should not be lulled into a false sense of security with their internal networks.

Forrester senior analyst John Kindervag advocates a "zero trust" network based on the assumption that internal networks can no longer be completely protected by fortified network perimeters. Kindervag says there were 26 insider breaches during the first six months of this year. Cybercriminals and even foreign countries are recruiting insiders to do their dirty work, so internal network traffic can no longer be considered completely benign.

Current security strategies are flawed in several ways, Kindervag says. For starters, security professionals believe that internal network traffic can be trusted and thus have placed the bulk of their effort in fortifying the network perimeter. This "hard on the outside and chewy

Key Points

- Know your employees through background screening, and then monitor their online behavior.
- Strictly control access to network resources with the minimum number of people and the minimum necessary privileges to get the job done.
- Keep tabs on your network and know network traffic well enough to spot strange events.

attempt to monitor hundreds of applications running on network resources, Kindervag says it is much easier and more scalable to keep tabs on them by monitoring their network traffic. The method of choice for this job, he says, would be to blend NAV (network analysis and visibility) and SIM (security incident management) technologies to collect the data, analyze it, and report security events. In a zero trust model, NAV tools would perform network discovery, analyze flow

According to Kissel, insider threats can be countered by screening applicants and then mitigating the risk of insiders already in the organization. "Prevention involves doing the pre-hire checking to ensure that bad apples aren't brought into the organization," he says. Insider prevention includes performing background checks, reference checks, educational checks, and even credit checks for those handling funds.

"Then, there is risk mitigation of existing employees," Kissel says. Risk management includes access control and monitoring. Kissel agrees with Kindervag that strict access control is a key way to mitigate the insider threat. SMEs can manage the risk of the insider threat through access control for all information, Kissel says, noting that this ensures that only those who need access to information to do their jobs actually are given that access. "It also includes limiting privileges so that a given employee doesn't have, for example, admin access on their work computers," he says.

Data loss prevention programs are also an important element, Kissel says, so enterprises can watch for data leaving the organization via email or any other data transmission means. "Other technologies

The Zero Trust Network Model Is Nothing New

Security professionals have always stated that "hard on the outside and chewy on the inside" is bad, says Dr. Eric Cole, McAfee CTO (www.mcafee.com).

"Essentially the ideas behind the zero trust is good advice but is nothing new," Cole says. "With the current advanced threat that is breaking into systems, the only way to defend is to know what you are defending and what is happening on your network," Cole says, explaining that, if you do not know the normal number of packets leaving a system, you can't possibly detect an anomaly.

"It seems the general principles behind zero trust is something I always tell people, which is assume you are compromised, and if you do not see any signs of a compromise, you are not looking in the right place," he says.

that I had in mind include products which use behavioral analysis to flag unusual behavior—this tends to be done to identify attempts to hack an internal network from the outside but could just as well be used to flag insiders who are doing unusual things," Kissel says. "It certainly includes data access limitations so that only those with a need-to-know/need-to-use can access business data," Kissel says. □

"Cybersecurity is as much about doing the right thing as it is obeying someone's edict about things you do and things you don't do."

- NIST's Richard Kissel

on the inside" security model does not protect networks from sophisticated internal attackers, he says.

Kindervag says the slogan "trust but verify" is often cited by computer security professionals, but in practice, they do not audit what they consider trusted resources. And, he says, because malicious insiders are often in positions of trust, they are able to commit crimes because security professionals do not adequately audit a trusted person.

In addition, it is impossible to trust network packets because they cannot adequately tell us the true identity and intention of the sender, Kindervag says.

Zero Trust Model

In a zero trust network security model, all network packets are regarded as untrusted traffic. The Zero Trust Model has three main principles, Kindervag says:

All network traffic must be protected using tools such as encrypted tunnels to protect data against snooping even on an internal network.

Controls should be in place to ensure that people access data with the least possible rights necessary to accomplish the job and strictly enforce access to only the necessary data for a task. Kindervag says access control tools such as RBAC (role-based access control) are currently adequate to do this job until something better comes along.

All internal and external network traffic must be inspected and logged. Rather than

data, dissect packet captures, examine network metadata, and perform network forensic examination. This advanced packet analysis and logging would give information security staff great insight into network usage, and public knowledge of this packet analysis and logging would keep insiders from attempting malicious acts.

Prevent & Mitigate

Richard Kissel, a small business security expert at NIST, says that current security methods are not working well against new security threats. "We have historically had a 'protect the end points and the network is protected' approach to network security, but that doesn't work real well against current threats (very much including insider threats)."

Kissel says it takes more than a technological solution to improve cybersecurity at enterprises. "We have to have a better approach to protecting our networks and our information, and this approach needs (in my opinion) to be holistic rather than focusing on specific items of technology," Kissel says. "Defense in depth is a start, but not the total answer," he notes.

Kissel says cybersecurity is as much attitude as it is a checklist. "It becomes an organizational culture issue as much as a technology issue," he says. "Cybersecurity is as much about doing the right thing as it is obeying someone's edict about things you do and things you don't do," Kissel says.

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Data Theft Outpaces Physical Theft, Study Shows

Most of us would probably not be surprised to learn that instances of digital theft—that is, the pilfering of electronic data assets—are on the rise. According to the “Annual Global Fraud Report” from risk consultancy firm Kroll, however, the number of data thefts has actually surpassed physical thefts.

Kroll’s worldwide survey queried more than 800 senior corporate executives and found that 27.2% of their companies have been victims of physical theft. For the first time, a wider margin of those surveyed (27.3%) has experienced the theft of data or electronic assets. Last year, 28% of those surveyed said they had been victims of theft of physical assets and just 18% said they had suffered a data theft.

Richard Plansky, managing director in Kroll’s Business Intelligence and Investigations Division, says, “Fraud is a huge problem for companies of all sizes and in all geographies, and it’s not going away. . . . Companies choose to ignore this risk at their own peril.” Kroll’s data suggests that fraud is on the rise, with lost assets due to fraud totaling \$1.7 million per billion dollars of sales. Last year, fraud accounted for \$1.4 million in losses for every billion in sales.

Reliance On Digital Assets

Plansky says the increase in electronic fraud is a direct result of our increased reliance on digital assets. “More and more, the value of businesses is measured by the ideas that they make rather than the things they make. Those ideas live in digital form on information systems and on portable media and, with more people than ever before having easy access to it, this leads to the kinds of results we see in our fraud survey,” he says.

The report also notes that companies in high-risk sectors, such as those that traffic in ideas and are information-rich, have been slow to adopt antifraud measures. “Technology is a double-edged sword,” Plansky says. Businesses tend to see the upside first—technology makes them more efficient and encourages collaboration across the company, among teams, and with partners. The downside is that it also makes critical information more easily available to fraudsters.”

To turn the tide against those who perpetrate these crimes, Plansky suggests companies start by identifying critical data, determining where it lives and who has access to it, and then clamping down and documenting every time someone accesses the data. “The strategic use of technology tools like intrusion detection and encryption can also make a difference.”

by Andrew Leibman



FEATURED PRODUCT

Top-Notch Drive Management & Security

Credant FDE DriveManager Lets SMEs Realize The Full Value Of Self-Encrypting Drive Technology

by Chris A. MacKinnon

• • •

HARD DRIVE ENCRYPTION comes in handy when a computer is lost or stolen. But in the meantime, keys, policies, and encryption management issues can be a headache. Fortunately, the engineers at Credant Technologies have developed the Credant FDE DriveManager, which provides a way to manage encryption technologies across the enterprise, as well as complete data protection for PCs, notebooks, and laptops. Credant FDE DriveManager’s technology fortifies Seagate Momentus self-encrypting 2.5-inch hard drives with remote management, strong user authentication, and auditing and reporting features.

Cutting Edge

Seán Glynn, vice president of marketing at Credant Technologies (www.credant.com), says the Credant FDE DriveManager enables enterprise customers to take full advantage of the latest self-encrypting drive technology. Glynn says that although many companies may have already started to

A Unique Solution

FDE DriveManager is an integral part of Credant’s integrated solution designed to manage existing encryption technologies as well as enable enterprise organizations to take advantage of the latest advances in encryption—an essential part of any data security program. “Self-encrypting drives are rapidly gaining acceptance, especially on laptop systems, as both reliability has improved and new standards are encouraging greater interoperability between manufacturers,” Glynn says. “Credant FDE DriveManager uniquely solves the problem of how to manage encryption keys and ensure policy enforcement across even the largest, most diverse organizations.”

According to Glynn, Credant FDE DriveManager integrates SED management with other encryption technologies, including software full disk encryption, policy-based encryption, smartphone encryption, Mac encryption, and removable media encryption. “As such, it provides the only way for a midsized or large organization, concerned

with the risks of losing valuable, sensitive data and of failing to comply with regulatory standards and laws affecting the broad

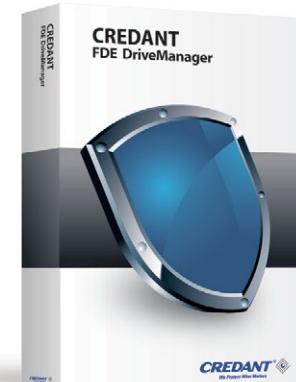
areas of data privacy, security, retention, protection, and accountability, to ensure their most critical assets are protected in the most cost-effective way possible.”

A Big Family

Credant FDE DriveManager is a member of Credant’s family of encryption management solutions. Other Credant solutions include Credant FDE, a software-based full-disk encryption solution available for both Windows and Mac OS; Credant Mobile Guardian, an intelligent policy-based software encryption solution available for PCs, smartphones, and removable media; Credant Protector, a port control and external media encryption solution; and a complementary suite of encryption management and compliance reporting tools.

Glynn says that together, these components form a highly flexible, integrated encryption management solution that enables enterprise customers to deploy exactly the right type of encryption for the type of data and users in question. “For some users, for example, simple full disk encryption may be all that’s needed,” he says. “For others, especially those who operate in shared computer environments or those who handle highly sensitive information, policy-based encryption will offer greater security from insider attack and accidental breach.”

He says that all users are likely to need removable media encryption in order to prevent one of the most common forms of breach: when data is copied to a USB thumb drive and then accidentally lost or



intentionally handed over to a third party. “All the above solutions work together to provide complementary, layered encryption protection that both reduces risk and, through its tightly integrated and centrally managed approach, actually reduces workload, too,” Glynn says. “This is why these tools are used in hundreds of organizations around the world, including some of the most secure and highly sensitive sites on the planet.”

What It Takes

Glynn says that in today’s business world, where the trend toward increased workforce mobility is often at odds with the organizational need for increased data security and compliance, Credant is focused on providing a broad encryption management solution to meet all of an organization’s needs—today and tomorrow. “As data breaches have become the No. 1 priority of security teams and as the computing environment has become ever more complex with many platforms and an increasingly mobile workforce, more and more businesses now rely on Credant’s tools and expertise to reduce risk, simplify security management, and show measurable business impact,” he says.

With FDE DriveManager, Glynn says your data will be more secure, auditing and reporting will be centralized, and ensuring and enforcing compliance will be simpler and cheaper. “Credant has the experience, tools, skills, and focus to help ensure your encryption strategy will be successful and will continue to meet the needs of your organization both now and in the future,” he concludes. □



introduce SEDs (self-encrypting drives) over the past couple of years, the challenges of key and policy management have, until now, prevented their widespread use.

Credant’s approach is to integrate management of these drives, which provide built-in, high-performance encryption, within a single set of management tools for all encryption technologies across the enterprise. “As a result, there is now a single set of management consoles from which IT and security teams can monitor, manage, and report on encryption of these drives along with other platforms such as Windows end points, smartphones, Macs, and even USB thumb drives,” Glynn says.

IT and data center managers in particular will be interested in this technology, Glynn continues. “Readers who are concerned about data breaches and who need to protect sensitive information and those who wish to take advantage of self-encrypting drives should take a close look at Credant FDE DriveManager. New and emerging hard drives with self-encryption technology help protect data at rest against theft, or when drives leave your control, and can also help reduce IT drive retirement costs,” he says.

“If you are considering adding these self-encrypting drive technologies as you refresh your client PCs, or if you already have some of these drives in place, you will be able to use Credant FDE DriveManager to both improve your data security and show a significant additional return on existing or new investments, which is especially important in times of tightening IT budgets,” Glynn adds.

CREDANT TECHNOLOGIES FDE DRIVEMANAGER

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- **Description:** A full disk encryption solution that enables complete and transparent data protection on self-encrypting hard drives through a centralized management console, allowing for secure policy enforcement, compliance assurance, and easy management reporting on a variety of hardware configurations and OSes.
- **Interesting Fact:** Credant Technologies provides data security to more than 800 companies and government agencies across the globe and secures more than 7 million devices.

Security Risks Of Network Printers

Treat Multifunction Printers As Servers, Not Peripherals

by Kurt Marko

• • •

THE NEW FEATURES, improved connectivity, and increased complexity of today's printers are a double-edged sword. Although networked peripherals are undoubtedly more functional and efficient (albeit more costly), allowing devices to be shared by many users, the added capability exponentially increases security risks. What were once "dumb" appliances have evolved into embedded computers, secretly hoarding everything passing through them, often unbeknownst to their owners.

The transformation of printers from glorified typewriters into multifunction devices has been enabled by a consequent explosion in their computational horsepower, with most now sporting internal hard drives for caching print jobs and faxes and embedded Web servers for system management. These features aren't confined to central-office, refrigerator-sized behemoths, either. Most SOHO (small office/home office) printers have embedded Web management servers, and many contain image-hoarding drives, a low-cost (\$100 or so), performance-improving option many buyers find appealing. This makes Sharp's 2008 survey, which found that 60% of users are unaware that digital copiers and MFPs record copies of every job they print, even more alarming.

The issue of printer security should be nothing new to IT professionals, particularly those in organizations with sensitive or legally regulated information. In fact, IT security guru Bruce Schneier warned about

Other Printer/Copier Data Security Risks

Aside from data left unencrypted on printer or copier hard drives, several other vulnerabilities can compromise security if printers get in the wrong hands.

- **Stored network information.** Network printers store network configurations such as IP addresses, subnet masks, gateway IPs, DNS servers, and domain controller addresses in flash RAM, not the hard disk; thus, these settings are not cleared by any "purge" functions and must be reset manually.
- **Address Book information.** Network printers with fax and/or digital sending capabilities often store email addresses and fax numbers (typically every fax ever sent). Some even download the enterprise's entire Email Global Address List.
- **The purge function.** The purge function used by older digital copy machines and network printers typically doesn't delete any data from the copier hard drive. It only renders the data inaccessible to the copier software, much like deleting a file from a PC doesn't erase the data but only the file pointer to the data. Therefore, the "Purge" button merely gives an illusion that the drive has been cleaned and like data on a PC's drive, can still be accessed with widely available scanning tools.

SOURCE: "DIGITAL COPIER SECURITY"; FOCUS RESEARCH BRIEF BY JOHN BAGDANOV; JULY 2010

printers' vulnerabilities over four years ago; however, it was only this spring that the risks became real to the general public. A CBS Evening News report in April unleashed a firestorm of public panic and vendor scrambling in response. As part of the investigation, reporters bought several used MFPs from a reseller, and with the help of a computer forensics expert, managed to unearth numerous sensitive documents, including a list of drug ring suspects from the Buffalo Police Department, pay stubs with Social Security numbers from a construction firm, and individual medical records and test results from a health insurance company.

Hard Drive Security Risks

Just like computer drives, printers' hard drives can be a treasure trove of confidential, embarrassing, and potentially valuable information. "Potentially" is the key qualifier, because identity thieves will find scavenging printers for useful information to be about as efficient as dumpster diving, a classic "needle-in-the-haystack" proposition.

Despite the media frenzy, Gartner Research Vice President Ken Weilerstein believes the threats are more theoretical than actual. "The [CBS] story didn't get into real cases of [information theft]. It's pretty rare for something like that to happen; I'm not aware of any cases." Yet Info-Tech Lead Analyst Darin Stahl knows of one case where an employee accessed a printer used by executives to glean unpublished financial information, which he subsequently used for insider trading.

Just as PCs' drives must be securely scrubbed prior to disposal, experts agree that printer drives must receive the same treatment. Although details vary by manufacturer, Stahl advises looking for adherence to recognized standards such as the NIST's (National Institute of Standards and Technology) "Guidelines for Media Sanitization" (SP 800-88).

Other Networked Printer Vulnerabilities

Document caching drives aren't the only security vulnerability of network printers. Most have embedded Web servers and expose management consoles via common network protocols such as Telnet, SNMP and HTTP. Because printers are often used until they break, turnover is infrequent, meaning embedded software is ancient by Web server standards. It's likely to contain many well-known and easily exploited vulnerabilities. While some may have security patches, many do not. As Schneier wrote, "One of the reasons this is a particularly nasty problem is that people don't update their printer software."

As Brendan O'Connor observed at the 2006 Black Hat conference, "Hardware-and software-wise, these devices are more like a low-end server or workstation than a copier or printer." Stahl agrees, saying that MFPs share many characteristics of servers and, from a security standpoint, should be treated similarly. "The minute you bring a device on the network, treat it as a server," he says, adding that IT should use the same security policies for printers and their embedded network services as they do for traditional application servers by setting administrative passwords,

Key Points

- Almost all departmental network printers and MFPs now sport internal job-caching hard drives and run a variety of network services—all things that create new security vulnerabilities.
- Embedded drives contain unencrypted (and easily recoverable) copies of print jobs and faxes, and Telnet and Web administrative ports can be exploited by network attacks.
- Network printers should be secured much like servers, by turning off unused ports and isolating administrative access to controlled VLANs, while printer drives should be securely overwritten prior to retirement. Optional security modules providing drive encryption and automatic data overwriting are a wise investment.

disabling unused network services and ports, and routinely applying available firmware updates and software patches.

Stahl also advises putting printers on a separate VLAN with customized access controls such that only machines belonging to authorized IT administrators can access the management ports (typically HTTP,

HTTPS, and SNMP), while limiting print port access (515 for LPD and 9100 for JetDirect) only to client print servers.

Enforce Policies & Management

Printer deployment, support, and administration often falls into an organizational black hole, with IT sharing responsibility with facilities or procurement. Weilerstein says, "Most organizations don't manage their printing as closely as they do other IT operations and infrastructure, so it's entirely possible that a company has a policy for overwriting hard disks, but that doesn't mean it's actually audited." Stahl agrees, conceding that although IT may have documented processes in place for scrubbing printer drives upon retirement, printer management is often a low priority, meaning many processes are often ignored.

Embedded security technology is one way to combat policy deficiencies. When planning printer upgrades or lease contract renewal, Stahl advises IT to budget for and install any optional security modules. Most vendors offer added security features such as AES encrypted drives, secure data overwriting (what Sharp terms a "digital shredder"), a client firewall, and even a physical lock for the printer formatter board. □

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Workers Would Take Less Pay For More Mobile Freedom

In a global study conducted by InsightExpress for Cisco, about 66% of employees surveyed indicated they'd settle for less pay if given more flexibility in where they could work, the devices they could use, and the access provided to social media. Overall, three in five workers reported they don't feel productivity relies on being in the office.

Cisco commissioned the study, called the "Cisco Connected World Report," in an effort to "understand real-life developments in the workplace and how they impact business communications, operations, and IT organizations," says Cisco's Neil Wu Becker, the study's research program manager. "This study can serve as a mirror for businesses to see an unadulterated view of employee demands around information access and how those demands can test the limits of IT policies, risk management, and employee productivity. From this, businesses can take action to assess and evolve corporate IT policies to strike a better balance between security and employee needs."



Overall, 2,600 employees and IT professionals in 13 countries were surveyed. In addition to the 66% of respondents who rated work flexibility over salary, Becker says, another surprise was that "the number of employees who said they were restricted from accessing social media, like Facebook or MySpace, was higher than we would've predicted." About 41% of workers indicated they weren't allowed to access Facebook or other social media on the job.

Where specific regions are concerned, the study indicated that businesses in Latin America and Asia—areas that house the fastest-growing economies in the world, Becker says—are ahead of the curve in terms of supporting mobile work flexibility. Countries leading in remote workers were India (93%), China (81%), and Brazil (76%). "It's not that the U.S. is lagging; it's that other parts of the world are accelerating their development and adoption of new technologies that are network-based," Becker says.

Benefits Of A Mobile Workforce

One upside for companies offering mobile flexibility is that, among workers who are allowed to access corporate networks, apps, and data outside the office, about 45% indicate they work two to three more hours daily and 25% said they work four or more extra hours.

Several factors can influence a company's willingness to offer mobile work flexibility, Becker says, including the prevailing corporate culture, budgetary restraints on making necessary technological investments, and the IT staff's expertise. "We expect mobility and workplace flexibility trends to increase," Becker says. "We found that already, the ability for businesses to provide their workers with this flexibility will dictate job choice, loyalty, tenure, morale, and productivity."

by Blaine Flamig

Better Manage Enterprise Printing

Keep Your Print Production Letter Perfect

by Brian Hodge

REMEMBER THOSE PREDICTIONS about how computers were going to usher in the age of the paperless office? Maybe a few diehard believers keep the faith, but the rest of us have filed that one alongside technology making work so efficient it would double everyone's leisure time.

The fact is, most offices continue to use paper like it grows on trees. Even though printing is a relatively nuts-and-bolts activity, there are still probably ways to tweak it at your company that will save resources and money.

Machine Politics

In most enterprises, the main causes of network printing inefficiencies and slowdowns are malfunctions and maintenance issues. Even a relatively simple paper jam can knock a printer out of commission for a needlessly long time.

"People will be likely to leave it for someone else to fix, unless their job is urgent," says Leigh Haig, an independent IT consultant. "This can create a bottleneck in print jobs as they get submitted, but none are actually being printed."

"Each printer has its own character and reputation."

- Mic Jones, senior systems administrator

To make sure that printers are available when needed, an end-to-end monitoring system is necessary so IT can quickly identify and rectify problems—everything from routine fixes such as low ink or toner cartridges and empty paper drawers to more serious technical issues.

However, when incidents do crop up, remember that printers and their users have one thing in common: They don't all enjoy equal status. Some printers have many users, others comparatively few. Also, some users simply rank higher.

According to Mic Jones, senior systems administrator for a national public sector client, when incident tickets reach IT, "We have to gauge our response to each request by the number of users affected. There are some trigger problem requests we have to jump on immediately: those that affect many users and those that affect executives."

Being clear on who your VIPs are, on both human and hardware levels, can help you prioritize your responses for the greatest impact.

Go for a consistent office environment. The more brands and types of printers you have, the more complexity you introduce when they inevitably need servicing.

"We've narrowed our support down to two different vendors for outside repair," Jones says, which helps a lot because he

Key Points

- Malfunctions and maintenance issues cause most printing bottlenecks, so end-to-end monitoring is needed to quickly restore problem printers to service.
- User education is the best way to maximize employees' likelihood of getting what they expect from a print job.
- Keep costs down by using duplex printing and conducting user training to help employees select the right printer, paper, and ink for the job.

doesn't have to look up who to call for a specific printer.

Although you may not be able to unify your environment all at once, this can certainly be a guiding principle as printers are replaced in the future.

Update drivers only when necessary. Don't be eager to update printer drivers if there's no urgent reason for it.

"We'll only update a driver when there's a specific need to do so, and so we take a look at the backside of that," Jones says. "Why would we need it to begin with? We'll read what we can about what the new driver does. If it really doesn't do much, if it doesn't add any additional functionality or security or anything, then we're probably not going to deploy it."

If the update is warranted, Haig recommends first trying it out in a test environment or among a representative sampling of test users, ideally some of your company's more tech-savvy people, who can handle a degree of troubleshooting in case conflicts or problems occur.

Make It Easy For Employees To Be Part Of The Solution

Printing involves several variables with the potential for error: printer selection, color or black-and-white, choice of paper stock. If users don't get things right the first try, the mistake wastes time and resources.

For Jones, there's no substitute for user education for maximizing employees' likelihood of getting what they expect and need from a print job. Anything IT can do to eliminate confusion will probably result in fewer do-overs.

"Giving each queue a meaningful name—such as 'Level 2 B&W LaserJet,' for example—makes the queue quite distinctive and hopefully easy for the user to select the right printer for their specific job," Haig says.

Other possibilities include designating specific printing areas for specific jobs, dedicating specific trays of a printer to specific paper types, and ensuring that printer drivers are set with the correct defaults.

Little Things That Add Up

Making a point to not overlook less obvious factors can, collectively, have a significant impact on printing efficiency—for instance, tracking when and

where employees move to different office space within the same building. If they remain assigned to their original printer or print server, they may now be inconveniently distant from it.

Also, if your company has an incident management system that lets you tag repetitive issues, keeping track of hardware quirks can reduce wasted time following up on false reports of malfunctions.

"Each printer has its own character and reputation," says Jones. "Let's say we have three people that say, 'Every time I print to this printer there's a knocking noise.' Well, some printers have a knocking noise when they come out of sleep mode or as they initialize—color printers in particular. You have to make sure that the users know that it's to be expected."

Cost Control

Many end users don't fully appreciate the cost structures involved in printing. Although most probably assume color printing costs more than black-and-white, few likely realize that black-and-white printing is more expensive on color printers than on monochrome printers. Black toner cartridges, for instance, can average about twice as much for a color machine.

Again, user education can help employees understand how to conduct printing so they're not sending jobs to more expensive printers when cheaper ones will do. It may also help to enable controls, such as management approval, on the more expensive printers so they're used only when necessary.

Finally, paper costs can be significantly reduced by duplexing print jobs—printing on both sides of a sheet of paper. As an added bonus, this is a popular green initiative, too. □

TOP TIPS

Before you can improve your company's printing environment, you need to take stock of its current state. Independent IT consultant Leigh Haig suggests focusing on these aspects:

- Frequency, amount, and size of print jobs. This can be used to properly specify the printers that should be used.
- Your ability to centrally locate printers so staff can easily retrieve their printouts.
- Whether any users or groups routinely print documents running hundreds of pages. Issuing them a dedicated printer could prevent numerous smaller jobs from being unnecessarily delayed.
- How printers are maintained in terms of technical support and maintaining ink, toner, and paper. Will these roles lie with IT/facilities/real estate teams, or will end users be expected to manage this for themselves?
- How significant a factor security is, such as sensitive documents that should be seen only by the person submitting the print job.

What To Do With Equipment That's Hard To Dispose Of

Consider Donating Or Recycling It Before Adding To A Landfill

by William Van Winkle

• • •

ACCORDING TO BRENT YOUNG, director of business development for E-Tech Recycling (www.eetechrecycling.com), there are real environmental risks that go with disposing of common office waste.

"If I took 25 4-foot fluorescent tubes out into the middle of a 2-acre lake, broke them, and dumped them into the lake, nothing would grow there for at least a decade," Young says.

And yet, recycling consumer electronics and IT equipment is all too rare. The EPA's (www.epa.gov) "Electronics Waste Management in the United States" report from July 2008 shows that of 205.5 million computer products disposed of in 2007, only 48.2 million were recycled—a recycling rate of only 18%. The rest was either incinerated or went into landfills. The EPA notes that electronic equipment is the fastest-growing category in municipal solid waste.

Because most e-waste studies from organizations such as the EPA are broad in scope and focus foremost on consumer electronics, getting a specific look at IT-centric recycling can be tricky. Only in the

your business and the environment, but you certainly don't have to let your old equipment pile up in a closet somewhere because you don't know what to do with it."

Possible Solutions

The good news is that most IT gear, if still in working order, has at least enough residual value to be donated. Items such as PCs, servers, printers, and so on are fairly easy for local recyclers to handle. However, if the item is nonfunctional or is too old to have any value left, and if there is no applicable takeback program, then businesses must be more discriminating. This isn't always easy to do, as some less scrupulous recyclers may strip out valuable parts while disposing of the rest in unwanted ways.

A "good" recycler is one that will protect worker health, maintain client security, work within local compliance requirements, and responsibly manage materials. The two primary standards programs for tech recyclers are R2 and RIOS, and compliant recyclers can be found through CER (Certified Electronics Recycler; www.certifiedelectronicsrecycler.com).

can be so expensive to recycle and also why as much of the glass as possible gets shredded and sent to secondary markets, such as aggregate for asphalt and highway paint. If CRT tubes get broken, they must be treated as hazardous waste.

Key Points

- Few studies specifically spotlight the IT portion of overall e-waste, but the environmental hazards posed by IT cast-offs make proper recycling essential.
- Certain vendors have aggressive "take-back" programs that can help businesses get rid of old tech gear and ensure that assets are disposed of securely. Research these to see which apply to you.
- Items such as CRTs and batteries are particularly tricky for organizations to recycle without the help of a reputable e-waste recycler, and expect the disposal to carry noticeable costs.

Batteries are also troublesome, only they're more often classified as "universal waste," meaning they're not immediately hazardous but still must be specially handled when recycling. For example, people are often advised to tape the ends of button batteries before disposal. Why? "Because they heat up, short out, and can crack," says Young. "Take five or six of them, even mostly depleted, stick them end to end, and you'll be blown away by how hot they can get."

Like so much else in battery recycling, though, removing that tape is labor-intensive. This is partly why organizations can expect to pay 60 to 90 cents per pound to recycle alkaline batteries and \$2.75 to \$3.25 per pound for lithium button cells.

Ultimately, recyclers should be able to inform clients about how all of the materials in their e-waste will be handled, from resale to materials shredding. If a recycler can't answer such questions or demonstrate certifications applicable to e-waste processing, beware. □

"What many people don't think about is securing their data at the end of its life when it can be the most vulnerable."

- Dell Global Asset Recovery Services' Mike Watson

past decade have governments and industries started to get active about subsidizing tech recycling, but most efforts are still consumer-focused. Larger IT organizations are left to fend for themselves, with piles of dead or unwanted gear growing ever higher.

The Reasons Why Not

There are many reasons why IT e-waste disposal can be difficult—cost and inconvenience are only two. Another large but less frequently cited problem is security. Consider a modern enterprise-class multifunction printer/copier. Many models have hard drives inside them that retain a copy of every document ever scanned, of special concern to highly regulated industries such as finance and health care. These drives can be difficult to remove from the host device, and some organizations never think to remove them before disposal.

"While many businesses spend a lot of time and money protecting their data from hackers and viruses, what many people don't think about is securing their data at the end of its life when it can be the most vulnerable," says Mike Watson, senior compliance manager for Dell Global Asset Recovery Services (content.dell.com/us/en/corp/cr-dell-earth-recycling.aspx). "Improper disposal of computer equipment can be extremely hazardous for both

Two of the most difficult items to dispose of are monitors and batteries. CRTs are well-known culprits and will often have statewide disposal bans on them. To counterbalance the ban, some states run tech recycling programs. The Oregon E-Cycles program, for instance, will recycle any computer, monitor, or TV for free, but only up to seven items at a time. This proves cumbersome for IT managers

What's In That Waste?

In addition to being in fluorescent light tubes, mercury also shows up in switches, relays, and especially liquid crystal displays. Printed circuit boards contain the toxic metals zinc, chromium, and nickel. The single largest source of lead in municipal solid waste, according to the EPA (www.epa.gov), is cathode ray tubes, the main component in all of those bulky monitors now being replaced with svelte LCDs. The Electronics TakeBack Coalition (www.electronicstakeback.com) notes that the CRT monitors can contain from 4 to 8 pounds of lead.

sitting on hundreds of e-waste units. There is nowhere in North America to recycle CRT glass, according to E-Tech's Young. The only two smelters left outside of China are in South Korea and India, and the glass must be cleaned before being shipped there. This is why monitors

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The illustration shows two men in professional attire. One man, on the left, is bald and wearing a dark suit jacket over a white shirt. The other man, on the right, has dark skin, wears glasses, and is dressed in a blue and white striped shirt with a blue tie. They are both looking down at a newspaper that is held between them. The newspaper has a prominent masthead 'PROCESSOR' and a headline 'When Space Becomes'. The background is plain white.

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DATA CENTER MANAGEMENT

Compiled by Rod Scher

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Key Points

- Choose usage scenarios carefully. Deploy gray market-sourced hardware in non-front-line applications such as testing and backup, where outages have less impact on business operations.
- Calculate energy costs. New hardware is typically more efficient than used equipment. Project lifetime power and cooling costs to arrive at realistic TCO figures.
- Know your vendor. Work only with trusted partners who own their quality control processes and stand behind their products.



Consider Going Gray

Buying Equipment On The Gray Market Can Drive A Greener Bottom Line

BY CARMI LEVY

Buying equipment on the gray market used to evoke thoughts of questionable equipment acquired under questionable circumstances. These days, bottom line-savvy IT decision-makers look to the gray market for cost savings in areas that don't necessarily need the latest and greatest hardware.

■ GOING "GRAY"

The gray market is essentially a parallel market where name-brand goods are sold through nontraditional channels. For example, a certain brand of routers may normally be sold through specific distribution partners, direct marketers, and VARs in certain regions or geographies. The gray market involves that same equipment, sometimes new but often used, being sold through other, unauthorized channels, often at a significant discount. Beyond cost, additional benefits include environmental friendliness, because the process

may reduce the need to manufacture new goods and ship them overseas, and timely availability of equipment when traditional channels might otherwise have no inventory. For example, if there are no authorized channels in your country or state, going gray may be your only choice.

"If you're going to be a responsible CIO, you seriously have to consider the gray market," says Bruce Daley, an analyst with Pike Research. "You don't want to be paying top dollar for equipment that doesn't need to be that good in this current economic time."

Although buying through the gray market is legal, it is often not overtly sanctioned by

the manufacturer. This can impact warranty coverage, parts availability, and service turnaround and must be calculated into the ROI to ensure the cost savings justify these potential drawbacks. Largely as a result of the lingering effects of the global recession, cost-conscious IT directors, CIOs, and CFOs are increasingly willing to look to the gray market for focused purchases of data center equipment.

As for used equipment, bargain-seekers can often pick up 3-year-old equipment at 20 to 25% of its original price. But those savings come with a cost. Beyond potential

channel conflicts with manufacturers, they may be less energy-efficient than brand-new, channel-sourced hardware. Because they're also off-warranty, IT must either purchase a la carte—and often expensive—service contract coverage or simply do without such support and deal with hardware failures as they occur.

■ RELIABILITY REMAINS TOP-OF-MIND

By choosing specific usage scenarios for gray market equipment, data center managers can minimize TCO without exposing front-line operations to increased failure rates. Target gray market-obtained hardware for hot backups, test environments, and other nonproduction uses—all areas where business impact in the event of failure is minimal to nil.

Despite the advantages, buyers must beware before looking to the gray market. Not all vendors are trustworthy.

"Know who you are doing business with and what their policies are on how they sell," says Patrick Hiller, CEO of Abacus Solutions (www.abacusslc.com). "Reputation is everything. There are many so-called brokers that do not ultimately take responsibility for the quality of the equipment."

However, Hiller adds, "There are many times when the only logical choice is to buy through the traditional manufacturer's channel" he says, "especially for hardware that has a heavy software component, like storage." □

Growth Of Retired PCs

The number of machines being retired has shown rapid growth, up about 67% between 2004 and 2007. But fewer than half of all computers—86 million in 2007—eventually become available for reuse.

Year	Number Of PCs Retired
2004	118 million
2005	140 million
2006	154 million
2007	197 million

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GREEN TECH & TIPS



Green Initiatives: Which Ones Are Worth Pursuing?

BY ROD SCHER

"GREEN TECH" IS ALL THE RAGE, with IT and executive-level management seeking to reduce their carbon footprint, achieve a certain level of sustainability, and—not at all coincidentally—to improve their bottom lines along the way. Given that few are in a position to completely revamp and modularize their data centers, what sorts of less elaborate green projects should they be thinking about? Which green initiatives are the smartest investments?

Short-Term ROI, Long-Term Buy-In

First, don't turn up your nose at short-term ROI, thinking that it's shortsighted. Sure, the long-term (and generally greater) return is what's ultimately important, but immediate results generate positive feedback, which begets continuing commitment. (And there's nothing wrong with saving a little money fairly quickly, either.) Installing more efficient servers, HVAC systems, and cooling racks can achieve immediate and meaningful savings while reducing the company's environmental impact. "Depending on their budgets, [IT managers] can do an immediate full or partial replacement of existing equipment with these more efficient products, or they can wait until they need replacement and then go with the enhanced products," says Jill Eckhaus, CEO of AFCOM (www.afcom.com). "In addition, technologies such as cloud computing and virtual processing can be both major cost savers and greening tools in that the data center will have much less

equipment installed and use less power and cooling."

Of course, more expensive replacements take longer to show a meaningful ROI, even though that return will eventually be greater. "On a limited budget, replacing less expensive equipment, such as servers, with the latest, greenest, products is a great place to start," Eckhaus says.

What about more costly investments? If possible, fold those into other, broader initiatives, Eckhaus says. "Any that require major expenditures, such as new buildings or additional space, are best left to times when your company is entertaining additional capital expenditures in other areas."

Selling Green Tech

Many green initiatives actually come from C-level executives and are pushed down to managers and the rank-and-file. In those cases, having an executive champion greases the wheels for you—it doesn't take a whole lot of convincing when you can go to a midlevel manager

and say, "The COO and the CIO want us to come up with a virtualization plan."

Sometimes, though, you find yourself having to sell a green tech initiative to upper-level management. In those cases, Eckhaus says, the smart approach is to show them the money. "The best way to convince upper-level management of most things is via cost comparisons—with and without what you are suggesting," she says. "Too frequently, new technology justifications lean entirely on what the new technology will do. For the most part, the bottom line is what will win out in the end, so make sure to make that a big part of any justification."

Money Or Environment?

So is it about reducing the company's environmental impact, or is it about money? Eckhaus says that it's always about both. "AFCOM has never been in a greening discussion that was focused entirely on environmental considerations—they always come back to cost savings and efficiency," she says. "AFCOM believes that all greening initiatives should be considered and implemented based on their laurels for the particular facility and its needs." □



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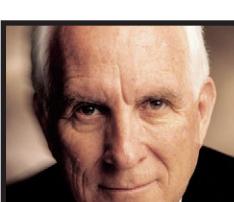
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You can find more detailed information on these companies and the products they offer inside this issue.

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NETWORKING & VPN



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CLIENTS



Maryland-based dtSearch started research and development in text retrieval in 1988. The company is known for speedy adoption of new programming standards, OSes, and file types. Plus, it has a flexible licensing model. Typical corporate use of dtSearch includes general information retrieval, Internet and intranet site searching, and email archiving and email filtering.

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NETWORKING & VPN



Sterling, Va.-based Simena specializes in network monitoring and testing solutions. The company has been in the business of meeting multiuser and multisite environment customers' needs for low-latency wire-speed products since 2002. Simena has clients in more than 30 countries and takes pride in the solutions its experienced network engineers develop and the patent-pending technologies that power its innovations.

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